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ABSTRACT

Embracing 4 Arizona elementary school districts (Arlington, Buckeye, Liberty, and Palo Verde) visited by consultants for evaluative purposes, this report presents information about and recommendations for the elementary schools in the Buckeye Union High School District. Summaries on the educational programs (language arts, social studies, mathematics, science, art, music, physical education, health education, home economics, or industrial arts), library programs, audiovisual services, guidance services, pupil personnel, school plant facilities and equipment, special services, and finance and business management contain (1) an introductory statement of ideas concerning the teaching or operation of a given subject or program, (2) observations and commendations, and (3) conclusions and recommendations which provide suggested guidelines for educational improvement in each school. Provided are 36 tables, 10 figures, 10 supplements, and 15 bibliographies on various curriculum and service areas. (MJB)

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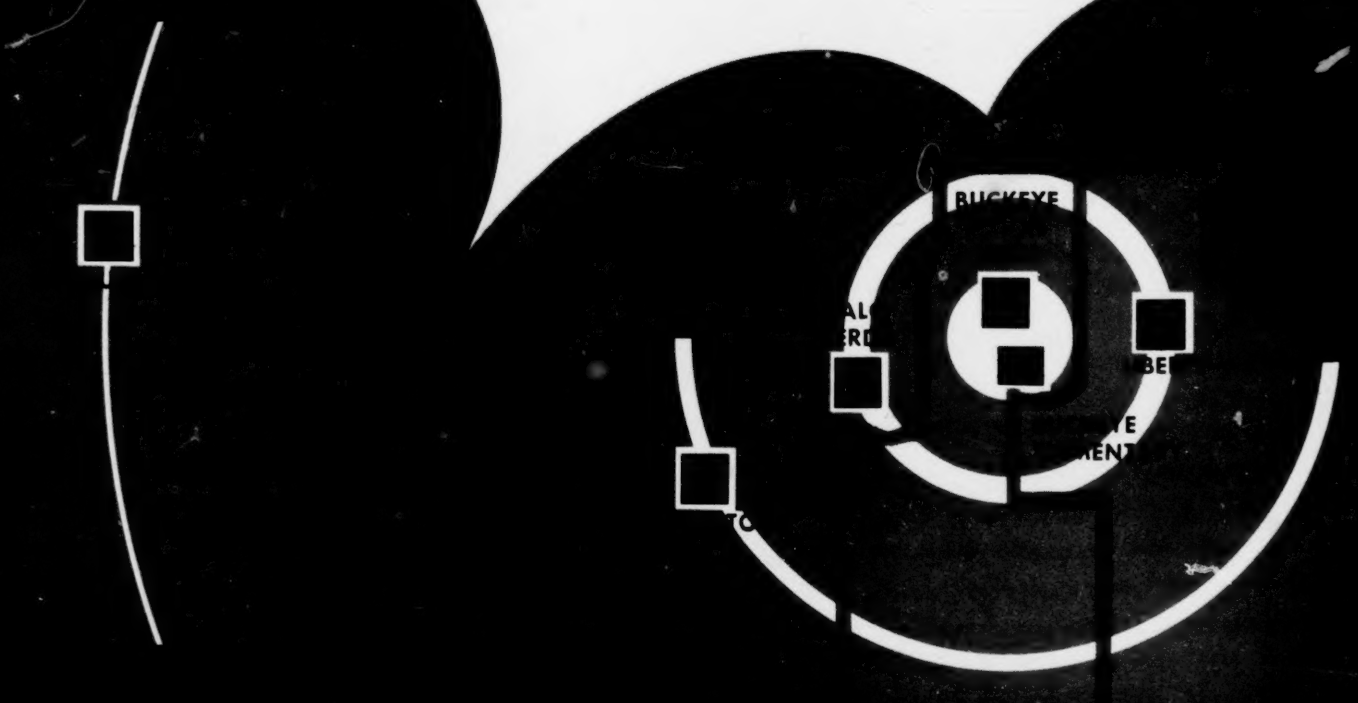

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REPORT OF SURVEY

March, 1965

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LETTER OF TRANSMITTAL

Board of Education
Buckeye Union High School District

This report of Survey is submitted for your study and reference. It presents information, analyses, and recommendations for school boards, administration, and staffs of the following school districts: Arlington District, Buckeye Elementary District, Liberty District, Palo Verde District and Buckeye Union High School District.

The purpose of the study was to provide guidance for the improvement of educational opportunities for all pupils in all grades of the five school districts. Some recommendations have been presented which pertain to all the districts collectively and others refer only to a single district.

The consultants serving on the survey staff have made many observations and commendations and have provided suggestions and recommendations for consideration of the authorities of the respective districts. These numerous recommendations should not be considered as a single "package" but, rather, serve as guidelines for the districts over a period of time. Superintendents and boards of the respective districts must determine those recommendations to be adopted and determine appropriate priorities for implementation at the present time and in the future.

A vital factor in the study was the excellent cooperation accorded the consultants by the superintendents, principals and all members of the staffs of all five districts. It was most apparent that all the professional staff members were positive in their attitudes toward the improvement of educational opportunities for pupils in their own schools and, indeed, throughout the entire area.

Respectfully submitted,

R. Merwin Deever
Howard J. Demeke
Survey Directors

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INTRODUCTION

This is a very unique and significant educational survey because of its scope and the manner in which it was initiated. The study embraced five separate school districts which have many common educational interests and problems and yet have many important differences. The Buckeye Union High School District includes four elementary districts --Arlington District with Arlington and Harquahala schools, Buckeye Elementary District with two schools (grades 1-3 and grades 4-8), Liberty District and Palo Verde District. The Buckeye Union High School District Board initiated the project and invited the four elementary district boards to participate in the survey. After careful study the proposed survey was endorsed by all of the boards and all of the superintendents. Thus they joined together in a concerted effort with the common goal of providing the best possible educational programs for all elementary and high school students in the area.

Any union high school district, serving as it does two or more elementary districts, experiences some difficulty in articulation of programs because of varying educational programs in the respective elementary districts. Students come to the union high school with many different backgrounds and levels of competency in various areas of the curriculum. The union high school district must continue to explore means of improving articulation with its "feeder" elementary schools and must also exercise leadership in encouraging coordination among the elementary schools. This educational survey was undertaken with these purposes in mind.

Each of the elementary schools was visited by the consultants and the report presents information and recommendations concerning each school as well as for the total group of schools. University consultants with special competencies in respective phases of the educational program were responsible for observing, analyzing and appraising the quality of each segment of the educational program within each of the elementary schools. Summaries of their findings are presented in this report. Each summary consists of (1) an introductory statement called the "point of view" in which important ideas concerning the teaching of that particular subject are set forth, (2) "observations and commendations" -- here the consultants carefully state what they have observed in the classrooms of each school and call attention to factors worthy of commendation, and (3) "conclusions and recommendations" which provide suggested guidelines for improvement of the curriculum by subject areas for each school. The consultants also provided valuable assistance by conferring with teachers and administrators concerning their educational problems.

Effective evaluation is constructive and helpful. The curriculum survey of each school was based on the philosophy and purposes as set forth by that school, for it is imperative that observations and recommendations be made in reference to what the school is trying to accomplish. The evaluation was of program, and should not be considered in any sense an evaluation of personnel.

The Report of Survey contains observations, evaluations and recommendations concerning educational programs, pupil personnel, school plant facilities and equipment, special services, and finance and business management. The final section of the report presents a summary statement of the major recommendations of the survey staff.

LANGUAGE ARTS AND SOCIAL STUDIES

Grades One, Two, Three, and Four

LANGUAGE ARTS

Point of View

Basic to all satisfying and successful social, academic, and vocational pursuits is the ability to communicate effectively. The primary years are probably the most important years of the entire school program in respect to communicative abilities. In the first nine years of a child's life his patterns of behavior, his attitudes and aspirations, and his thinking habits are formed. In succeeding years, changes are slow to come and attitudes are difficult to change. If a child leaves grade four with poor study habits, ineffective speech patterns, poor reading ability, and low levels of aspiration, his chances for a successful educative experience are already jeopardized and he is a first rate candidate for "drop out."

Across the country is sweeping a trend toward remedial programs, and special education services. One wonders if the emphasis is applied too late and the concerns too short sighted. Perhaps if special services, specialized personnel, the expenditure of funds for psychological guidance were aimed at early education, pre-school training in English, and carefully designed readiness programs with focus on language training and concept development, there would be less need for remedial measures in later years. (See also Guidance Services).

In those first four years of a child's school life he develops his habits or patterns of thinking. While it is unlikely that any individual actually taps the full power of his potential, the degree of his level of thinking is most surely influenced by the habits of thinking he develops early in his educational experiences. Primary teachers, particularly, are charged with the responsibility for causing children to think responsibly, and creatively.

In such a setting, it follows logically that children will develop the ability:

To listen appreciatively and attentively
To speak responsibly and interestingly
To observe keenly and accurately
To read perceptively and comprehensively

Communication power comes not from a single ability but from many interrelated skills in fine balance. In a sense, such power might be compared to a cable made up of many strands intricately interwoven for strength.

While the stranding of the cable becomes the responsibility of those involved in curriculum planning, the utility must be measured and tested constantly in terms of the degree to which each student reaches his maximum efficiency level in the communicative arts.

A well balanced program places equal emphasis on the receptive and the expressive arts.

A well planned program is so designed that each student may develop abilities commensurate with his capabilities.

His learning experiences in the receptive arts should enable him:

.... to glean from the printed page as well as the spoken expression, ideas that are worthy, valid, and significant,
.... to draw upon past experiences and accumulated concepts in order to evaluate and build new concepts,
.... to react in such a way that the resulting interpretation becomes a creative and critical experience,
.... to develop a "sixth sense" concerning the accuracy and validity of the ideas received,
.... to become increasingly more sensitive to aesthetic and literary qualities.

His learning experiences in the expressive arts should enable him:

.... to develop the ability and the self confidence to express his ideas, his opinions, and his feelings,
.... to acquire the vocabulary that enables him to express himself with clarity, accuracy, vigor, appeal and color,
.... to manage the mechanics that make his expression socially acceptable and accurate,
.... to develop a "sixth sense" concerning the timing, the propriety, and the good taste of oral and written expression.

Above all else, the interrelatedness of the communicative arts demands balance in the language program. A balanced reading program calls for equal emphasis upon skills of interpretation and skills of word recognition. Too much time and focus on one phase, to the neglect of the other, throws the balance out of line. Time allotments must be made for learning to read in the content areas and for personal recreational reading.

Large blocks of time for language arts, permits flexibility in achieving balance among basal, content, and personal reading, as well as practical and creative writing.

Particularly in the primary grades, children must develop sensitivity to literary quality. Like measles, literary taste is caught from exposure, it doesn't just happen. Such sensitivity is the one best means of instilling in a child the life-time habit of reading.

Written language in the primary years both formal and informal is best achieved through purposeful writing activities centered around the daily living activities of children. Family affairs, pets, tales of high imagination, work and play, wealth and nature--all provide a rich and meaningful setting for compositional writing, charts, notes, letters, daily diaries, and experience charts.

Valid research points out that a child spends from 60 to 70 per cent of the school day in listening, yet studies reveal that, in general, listening skills are given less attention than any of the communicative arts.

In real life, both in school and out, for children and adults, oral speaking is the chief means of communication. Our speech is our trade mark. There is a real need to assess carefully the amount of time and the kind of oral speech training that should take place in the elementary school.

SOCIAL STUDIES

Point of View

The social studies curriculum begins with the child's understanding of his role within his family circle, and expands in ever-widening horizons as he moves into new relationships with the larger school and neighborhood community.

Informed and responsible citizenship is dependent to a great degree upon understandings the individual develops in early school experiences as he studies the people, the places, and the events that have shaped and will continue to shape the pattern of his own existence.

In the primary grades, the home, the school, and the community form a core around which the young child can begin to understand the responsibility of democratic behavior, and the concept of man's interdependency, one upon the other.

Presently there is much controversy concerning the content of the social studies program. The curriculum is already "bulging at the seams" with facts and data. Indeed, each morning's newspaper adds one more chapter to a voluminous compilation of geographic, scientific, and historical information that is to be labeled and included in the disciplines which make up the structure of the social science classes.

Centers of interest have shifted from earth geography to space geography just as has happened in the shift of interest from earth science to space science.

The resulting pressures and refocusing of emphasis have caused much confusion concerning the sequential arrangement of social studies topics, the scope of the chosen topics and the time allotment appropriate for this area.

While these concerns are perhaps felt more keenly in upper grade levels, primary teachers, too, are caught up in the perplexities of deciding what content is appropriate for which time for what students.

LANGUAGE ARTS AND SOCIAL STUDIES

Grades One, Two, Three, and Four

Observations and Commendations

Arlington School

General. Primary children are affected by the physical setting and the emotional environment that surrounds them. Like plants, they appear to thrive in an atmosphere where the emotional climate is warm and roots can be set down in rich growing areas.

Pleasant inviting classrooms, clean and colorful equipment, with room for laboratory type experiences have a positive effect upon children's attitudes and behaviors. Healthful living habits at school most surely influence a child's life-long health and hygienic habits.

The Arlington School Board and administration are to be commended for planning a physical plant that provides such a pleasant learning environment. The cleanliness, the attractiveness and the utility of the building was most impressive. The appreciation of teachers and students was apparent in the comments heard.

It is apparent that a good working relationship exist among teachers, administration, parents, and staff. In such a setting, with such a spirit of cooperation, there exist many possibilities for team teaching efforts and for action research projects appropriate to the particular characteristics of the school.

Class membership in the primary grades was being held to a reasonable load. In each class, pupils were organized into the traditional three-group plan. A limited range grouping arrangement had been set up between the two third grade classes.

Seating arrangements were organized in traditional rows. Individual seats rather than tables were used. No special group-discussion settings were observed other than for a group reading table. Library books were seen on shelves, but no library centers or display areas were noted.

Commendations are in order for the special reading room with its excellent collection of aids, materials, and teaching devices. The special reading teacher is commended on the well organized materials center. The special reading room is a positive effort toward giving individual help to children who have not achieved their level of capability in reading. The next step would be to set up an organized plan for testing, diagnosis, and evaluation.

There were audio-visual aids available. Teachers seem most concerned about the availability of slides, films, and film strips. In an area where many children have had limited experiences it would seem that the vicarious experiences provided through such materials is extremely important. No visual aid equipment was in use or in evidence during the observations. There was reason to think that an in-service program on the use of the tape-recorder, the over-head projector, and multi-media projections would be profitable to the staff, particularly in relation to the reading, speaking, and listening programs.

There was convincing evidence in the primary classrooms of Arlington School that keen concern is felt for the individual child both in regard to his academic progress and his emotional and social development. Such evidence was demonstrated in a number of ways:

1. By the warm emotional classroom climate ---

Observation of children gave indications that they felt secure, unthreatened, and relatively free from emotional pressures.

2. By democratic classroom management ---

Children appeared to have accepted the responsibility for self-direction and self-discipline. Not once during the visitation was there a demonstration of autocratic control on the part of a teacher.

3. By the teacher-parent relationships ---

Parents and teachers appear to work in close cooperation. There was a community spirit in evidence that spoke of excellence in home-school cooperation.

LANGUAGE ARTS

Reading. It was evident that the staff at Arlington is cognizant of the importance of a good reading foundation at primary level. A great deal of focus has been placed on the basal reading program, with major emphasis being placed on phonics. The provision of a special reading program was provided to aid slower readers in reaching their achievement levels. Commendations are in order for these concerns. Observation of the reading program in action revealed the tremendous challenge that exists in the school, where there are so many bilingual students as well as students who had entered school with very poor language patterns in whatever language they speak. At the same time, it was noted that some of the pupils were particularly mature in their language development. Consequently, the range of language abilities was wide in each classroom.

All classrooms were using the Scott Foresman Reading Series along with the Phonetic Keys to Reading Series published by the Economy Publishers. Next year the Ginn Series will be used.

Limited numbers of supplementary readers were available. These were not used in any organized manner.

One classroom was set up as a library, with one of the teachers in charge when time permitted. This room was also used as the music room. It is commendable that the school has provided library facilities.

In the first grade room were many pupils who spoke no English upon school entry. It is commendable that the teacher had been able to move as many children into the reading program as she had, considering the lack of language development among her group. Observation of the class seemed to reveal a great need for a kindergarten program, or at least a lengthy readiness program.

Language facility determines the degree of success in any reading program. The wide range of ability in social, physical, and language ability indicates a need for some specialized help at this level. The need for practice in oral communication is very evident. Pupils must be able to speak in sentences before they can comprehend written sentences.

It appeared that a number of the first grade pupils were unable to grasp the abstract concepts of the phonetic rules being given.

For the less mature, phonics should likely be delayed until pupils have grasped sentence sense and learned a number of sight words.

In all the primary grades, major time and emphasis appeared to be focused on reading with much focus on word analysis skills. The ratio of time spent on word attack skills and comprehension skills, appeared to favor the former. While it is commendable that attention was being given to this area, caution should be exerted that comprehension and interpretive skills may be neglected. Word readers often find themselves in great difficulty when they move into content reading.

Upon questioning, some teachers expressed the feeling that the slow readers do not profit as much from phonic generalizations as do the average or fast readers. *This has many implications that merit serious study*.

In an attempt to give individualized reading practice, the S.R.A. Reading Laboratory was being used at grade four. Reader's Digest Skill Builders were in use. The reading range was 2.0 to 6.0 in grade four. It is commendable that attempts were being made to better reach the range of differences.

It was noted that much more emphasis was being placed on oral reading than guided silent reading. If every child reads, and all of the story is read, this leaves little time for discussion, interpretation, and concept development. *When silent reading, in a guided situation, is carried out, oral reading can be done as a purposive activity to verify a fact, to re-interpret an idea, or to explain an event*.

Commendations are in order for the primary teachers who provided self-teaching aids in order to better utilize a child's "free time." Examples of this were the plastic pockets with vocabulary aids observed in use in one classroom, and the manipulative devices for phonic practice in another. *In a team-sharing approach, teachers might produce many such aids that could be exchanged from time to time*.

Handwriting. At Arlington manuscript writing was taught at grades one and two with the transition being made to cursive in grade three. Writing practice took place generally in the day-to-day writing needs. In grades three and four stress was placed on writing during the spelling periods. It was noted that some of the less mature students were having trouble with cursive writing.

Language-written and oral communication. There was evidence that children were given practice in communicative skills in informal situations. Discussions concerning the weekly reader gave some practice in oral speaking.

Practice in mechanics in grades three and four was given principally through material from workbooks such as the one published by McCormick Mathers. Dittoed work sheets were also used.

There appeared to be lack of sequential planning from grade to grade. There were no written goals or activities available. *If by common agreement the scope and sequence of the language program were worked out, there would be fewer gaps in sequential learnings and needless repetition avoided*.

It appeared that more stress was placed on written form than on oral practice in language usage. It is urged that the staff re-examine the oral language activities. *Success of the new linguistic approach, with its emphasis on speaking, merits much consideration*.

Spelling. While there was some attempt to use some of the daily need words in the spelling lists, spelling lessons were based largely on the basic list in the spelling text book. Observation did not reveal to what extent provisions were made for individual differences. Special help appeared to be given to less able students. Stress was placed on phonics in the spelling lesson. Perhaps the spelling lesson affords the most logical and economical means of applying word analysis principles.

Literature. Stress on literary experiences was given principally through teachers reading to children. Time for experiences with literature and poetry seemed to be the problem. The only reasonable solution at present appears to be in reducing the number of basal reading and phonic lessons, in favor of occasional literary experiences. Free choice reading with time for informal reports, sharing, discussions seems important.

SOCIAL STUDIES

At the time of the observation, it appeared that pupils at Arlington School had excellent social living experiences within the school. The best preparation for successful adult living within the social structure of a community is a rich and successful daily living experience with peer groups in school. Emphasis upon holidays was being used as a means of teaching children about the customs of our country and about our heritage.

To a great extent the social studies program at Arlington was incidental. The state adopted texts were occasionally used but not in an organized sequence. Teachers generally lamented the lack of time to present this area, and commented that no agreements had been reached concerning the units that should be taught at each level. Most expressed a need to better organize a sequential program in which some common agreements are made concerning selection and arrangements of topics, as well as the grade-placement for selected units.

LANGUAGE ARTS AND SOCIAL STUDIES

Observations and Commendations

Harquahala School

A teaching principal and three other teachers made up the faculty at Harquahala Primary School. Two, two-room buildings were being used for classrooms while plans were underway for a new building. In its beautiful desert setting, this school would seem to offer to children a rich and unpressured kind of environment. If there is one word that could define the school philosophy, it would be concern. During observations and in the discussions that followed, it was apparent that each teacher was personally concerned about the physical welfare, the social development, the emotional health, and the academic progress of every child in the school.

Teachers are to be commended for creating a warm emotional climate in classrooms that lacked much in terms of modern facilities and conveniences.

In one of the first grade rooms was one of the most versatile listening centers that can be seen in a primary classroom in the "Valley." It is hoped that other teachers may see the center in operation. The pre-taped materials, hand-tailored for pupil needs by the teacher, demonstrate programmed learning in its best form.

Teachers expressed the need for more audio-visual equipment and more library materials. A small number of books on a bookshelf in the cafeteria served to add to a very limited number of copies of supplementary readers. Few aids and supplies of instructional materials were available other than those made by teachers.

Text selections for reading, spelling, science, and social studies materials have been made from state adopted materials. These were supplemented by workbooks and ditto pages.

The Scott Foresman readers were used as basic texts. In classrooms were also seen Phono Visual and Hay Wingo materials. Teachers could use what they wished. One teacher was using Phono-visual materials and reported success with its use. A number of phonic aids and charts had been made.

The wide range of ability in each classroom created many problems. One of the basic reasons for this was the bi-lingual factor. In one second grade was a new student from Mexico who spoke no English. In some rooms, language experience stories, science and arithmetic charts, and content-oriented writing was used as a means of building verbal facility and extending vocabulary. In others the writing experiences were centered in language work texts.

There would appear to be a great need of a kindergarten program or a year of pre-first readiness experience. Wide differences in ability were noted in grade one.

Social studies content was built around daily living experiences. Teachers chose areas for emphasis. Some use was made of social studies books. No weekly readers were available. Teachers used pictures from their own collections, but there was no central picture file, nor were there film strips or projection materials.

Articulatory problems, immature speech patterns, and poor language patterns suggest that this is an area of concern and that teachers could be aided through the provision of specialized help in this area.

LANGUAGE ARTS

Observations and Commendations

Buckeye Elementary District

In the Buckeye Elementary School many opportunities were afforded for excellent experiences in language arts. The well planned classrooms, the large areas for activity, the colorful furnishings, the pleasant surroundings create an ideal environment for maximum growth.

Teacher-pupil rapport was excellent. Children appeared to feel comfortable, secure and eager to express themselves. It was very evident, both from observation of classroom situations and from discussions with teachers that there was concern for each individual.

Reading. The district has evidently felt a need for strengthening the reading program. Many provisions have been made for giving particular emphasis to skill building. A modified form of the Joplin Plan was being implemented in grades two and three in an effort to place children in ability groups for reading.

A combination program is in effect using Phonetic Keys To Reading, the Ginn Readers, and Scott Foresman Readers. Many reading aids and charts were in evidence including Phono-Visual Charts.

It is commendable that children were placed at instructional levels in the Phonetic Keys material as well as the Ginn and Scott Foresman texts. It was not evident in what manner teachers were making adjustments for the differences in skill sequence between the Phonetic Keys program, and the word perception program in both the Ginn and Scott Foresman program.

It was observed that the schedule at primary level allotted proportionately more time to the skill-building processes or reading than to skill-application time. Library reading, supplementary reading, sharing of reports on books appeared to be done occasionally but not scheduled into the program.

At fourth grade level the Ginn Program was in use and all children were reading in the same reader. Supplementary books could be read in spare time. It was indicated that some grouping might be done "after the holiday rush."

A special reading room was provided. The materials, the facilities, and the program carried on in this room appeared to be outstanding. Children with reading problems were aided in building needed skills and were given rich experiences in language. The administration is to be commended on providing this service and the special reading teacher deserves commendation for a very fine program.

It appeared that the special reading teacher had a heavy work load. If adequate diagnostic testing is done, followed by careful evaluation of test results, and subsequent remedial work, it would appear that additional personnel might be needed.

Literature. Room libraries were provided. Children read in spare time. There was some indication that the slower students often were unable to complete work in time to read supplementary or library books.

Literature related to holidays was given special attention.

Listening. There was evidence that children were receiving some instruction in listening through classroom instruction through use of records and through Weekly Reader exercises. By and large, research reveals that listening instruction receives less emphasis in school programs than any other. In the short time permitted for observation, it could not be ascertained if this was true at Buckeye School. In light of the amount of time children spend in listening in a classroom, it would seem that this is an area that must always be given special attention.

The listening center in the special reading room was excellent.

Speaking. In many classrooms children were participating in oral language experiences. The classroom *atmosphere was permissive* and children were *encouraged to talk*.

It appeared that the oral language experiences were generally carried out in total class activities. *No small discussion groups were noted*. There was no indication that partner groups or team learning was used to any extent.

The traditional seating in rows was used, thus *face-to-face speaking experiences were limited*. Room size was ample to permit seating arrangements that would allow better speaking-listening situations.

It appeared that verse-speaking was used in some classrooms.

Writing. Displays of children's stories and poems in some rooms indicated that children *were being given many opportunities to write both creatively and functionally*. A few charts were seen indicating that word lists were built around topics of interest, but no individual dictionaries or class word files were noted.

In general, it was noted that in the classrooms where children were having creative writing experiences, the handwriting was better, and the pupils appeared to be more adept in verbal facility.

The Houghton Mifflin language text materials were used in some classrooms to teach language usage. Mimeographed materials were used occasionally.

No written guides in language were being used and no agreement had been made concerning sequential language skill development through the grades.

SOCIAL STUDIES

Teachers are to be commended for the *many rich living-learning experiences* they were providing for students. There is no better way for children to learn about their privileges and their responsibilities in a social group than to have many problem-solving experiences in a classroom. It was evident that provisions for such experiences were made in all classrooms.

In the brief time of observation it appeared, however, that there was some lack of sequential planning in the social studies program and that the incidental approach may *be leaving gaps in certain areas*, *repetition from grade to grade in others*.

Most teachers expressed a need for *more time to teach social studies*. Time allotted for reading and language appeared to leave a very limited time for social studies and science. This suggests *some lack of balance between skill-building and skill-application time allotments*. It would seem important that a child develop an ever-expanding understanding of his school, his neighborhood, his community, his state, and (by fourth grade level) the United States and our neighboring countries.

LANGUAGE ARTS AND SOCIAL STUDIES

Observations and Commendations

Liberty School

General. The comfortable rural atmosphere, and the well kept buildings and grounds of Liberty School provided an excellent setting for an elementary school program. The administration and staff can be commended for providing many educational and recreational opportunities for children of the district.

It was apparent that a good working relationship existed among the teachers. Tasks were shared, and an arrangement had been set up whereby certain class responsibilities were exchanged among teachers. There exists the possibility that this plan could be easily organized into a team-teaching effort.

Seating in each room was in traditional rows. No activity centers, reading or listening centers were noted, although a number of interest centers were observed. These were, in most cases, collections or displays of science material.

No audio-visual equipment was in evidence. There was an apparent need for films and film strips in order to extend and enrich the program, and to aid in concept building. Primary classrooms especially need well organized film strip files and access to records, recordings and films if conceptual thinking is to be developed.

LANGUAGE ARTS

Much focus had been placed on reading in the primary grades at Liberty School. The traditional three group plan was used in most classrooms, however; this was a "flexible" arrangement. Groups varied according to need.

Text materials had been selected from among state-adopted materials. Apparently by common agreement or individual choice, the Ginn Readers had been selected for all rooms. The Phonetic Keys materials were used as a co-basal program at grade one. The phonetic program of the Ginn Series was stressed at other grade levels, supplemented by workbooks and dittoed sheets.

A library was located conveniently for all classes. It is commendable that a librarian is on the staff. Student help was provided to aid the librarian. While there appeared to be a need for more books appropriate to the wide range of ability in primary classes, a fair selection was available.

Separate periods were scheduled for phonic drill. Children were not grouped for this practice. There is some question concerning the degree of application that is made by less able readers when they work at frustration level in phonic lessons. Research indicates that not all pupils profit from phonic drill if readiness is not established. Generally, children must have an adequate speaking vocabulary, a fair-sized sight vocabulary and many chances to hear and feel the rhythm of language before they are able to profit from phonics.

Some charts were in evidence. This suggested that language experiences had been the motive for experience-type writing. As a teaching method, however, experience charts were not used extensively in the primary rooms at Liberty School. *In view of the linguistic experiences that may be acquired from such experiences this would merit careful study*.

Written language. Although the observation time was brief, there were indications that more stress was placed on written exercises than on oral communication practice. While some class discussions were noted, it would appear perhaps that time allotments for reading and phonics were proportionately greater than for any other area. In view of the importance of reading, it is possible that this may be justified. *It would seem advisable, however, to assess the reading time allotments in terms of a balance of time for literature, personal reading, reporting, and practice in content reading*.

Commendations are in order for the samples of creative writing observed on a number of bulletin boards. The type of compositional writings suggested some correlation with science and social studies. Holiday observances were used as a means of motivation for independent writing or "dictated" copy writing.

While a class dictionary was noted in one room, it did not appear that class word lists, or individual dictionaries were used.

Writing and Spelling. The state adopted spellers were used and the traditional weekly study plan appeared to be used. It was not evident that class word lists were developed to supplement the weekly basic list. Writing practice was stressed during the spelling periods.

In some cases, lack of motor coordination in small children would suggest that much of the writing practice should be done on the chalk board and that manuscript writing should be continued through grade four for slower learners.

Speech and oral communication. General observations indicated that many of the students had poor speech habits, and limited verbal facility. Since a number of the students were bi-lingual this might have been expected; however, poor speech habits are often almost as common among English speaking pupils, as among those who have learned English as a second language. *Only by providing many speaking opportunities, both planned and incidental, can children overcome faulty habits*.

A permissive environment was apparent at Liberty School suggesting that children are free to express their feelings and ideas.

There appeared to be no plan in the program to correct articulatory problems or speech deficiencies. No provisions were made for diagnosing speech problems, and no specialized aid was available to assist teachers in this area.

SOCIAL STUDIES

Schedules of classes for grades two, three, and four did not list a period for social studies; however, an excellent unit was in progress in one of the third grade rooms. Charts and materials indicated social studies activities were being carried out in a number of rooms.

Some social studies content was stressed through the use of *Weekly Readers*. Holiday observances provided occasional study of customs and cultural heritage.

While some guided reading in the social studies book was demonstrated, it was generally indicated that students informally read from the social studies textbooks in the rooms. For the most part, the reading of content material has been done on an individual basis with a minimum of opportunity for problem solving, for discussion, for discovery, or for critical thinking.

Some reference books were in evidence, particularly pertaining to science.

It is very likely that the students in this school were having excellent experiences in social action skills. "Rich living" within the school community is perhaps the best kind of preparation for fruitful participation in an organized society. *It is suggested, however, that the existing program could be strengthened by planned sequential learnings from grade to grade.*

LANGUAGE ARTS AND SOCIAL STUDIES

Observations and Commendations

Palo Verde School

General. Enthusiasm is the word that best characterizes Palo Verde School. In the administration office, in the classrooms, or in the auditorium, one had the impression that interesting things were happening. This spirit of adventure was evident in classroom attitude. *The administration and the teachers are highly commended for creating and maintaining an atmosphere so condusive to growth*. It was evident that teachers work as a team and that children were profiting from the rich school life experiences as a result of this.

Though the buildings are old, classrooms were pleasant. On bulletin boards were many displays of children's writing and art work. Many of the classrooms were very small thus limiting the amount of activity or group work that was possible. Lack of space in most of the rooms would make it difficult to use informal face-to-face seating arrangements, yet *this would seem to be a desirable arrangement in primary classrooms* if children are to have realistic communicative experiences.

It appears that all pupils transfered to cursive writing at grade three. Research evidence indicates that immature children often profit from continuing manuscript until such time that they are physically more mature. There is some evidence to show that this practice may reduce reading problems for less able pupils as well.

LANGUAGE ARTS

Reading. The Scott Foresman Reading Series was used in grades one through four supplemented by current event materials, library books, and some supplementary readers. No separate phonic program was used in this school but the word perception program of the basal series was followed.

Although only limited time was available for observation, there was evidence that much focus was placed on reading and that there was an attempt to balance emphasis between skill building and skill application.

In the first grade reading lesson children were given time to develop word meanings. Picture clues, and mental imagery were used as means of developing insights and conceptual thinking.

Extreme differences existed in language ability at the first grade level emphasizing, as is evident in most areas where more than one language is used, the critical *need for pre-first language training*.

While many educational games were noted in the first grade room, the teacher's time was limited in terms of working with individuals and small groups. *Language training requires much individual work*.

Comments made by teachers in grades two, three and four indicated that lack of verbal ability in English was a problem that was presistent in some children in each level and in all subject areas. *This appears to be the one greatest challenge in the primary level in this school and probably should receive careful study in all curricular efforts*.

Language. Written and oral communication was stressed in correlative experiences through social living experiences, holiday observance, and science activities. Some provision was made for specific writing practice.

In the fourth grade room, many charts, booklets, and cooperative compositions had been developed through social studies. Music activities were closely correlated with all areas of the curriculum. Class-composed songs told the story of early colonization and the development of America. Many child-centered activities were in progress.

Spelling was taught both directly and incidentally. The Lyons-Carnahan Spelling Series was used as the core list. In later primary grades, word lists included words from class writing needs.

Writing practice appeared to be incidental or correlated with spelling practice. Samplings of children's handwriting suggested wide differences in abilities. It was not noted whether primary children practiced writing on the chalkboard, but *it would appear that less mature primary children would profit from this experience*. Left handed children particularly avoid extreme back slant and over-hand habits if first writing experiences occur on the chalk board.

SOCIAL STUDIES

While social living experience appeared to be stressed in all primary rooms, there was no agreement upon the scope and sequence of the social studies program. There were no written guides stating goals or setting up suggested areas of study. If sequential learnings in the contents areas is to occur *it would seem necessary to agree upon some structure and organization in total curricular planning in this area*.

The state-adopted social studies series was used to some extent. *Weekly Readers* supplemented content materials. Two field trips were planned each year. Observation did not reveal to what extent films and slides were used in giving children vicarious experiences that could result in clarification of concepts or clearer understandings of space and time relationships.

Class membership appeared to be somewhat heavy in relationship to classroom size. Ranges of ability appeared to be wide. In each class, pupils were grouped for reading.

A fair selection of books was available in a library room. The third grade teacher had charge of the library in addition to her classroom responsibilities. Room libraries were set up and there was evidence that pupils made good use of existing library materials.

All primary rooms had a set of Childcraft or Compton's encyclopedias. There was much demonstrated evidence of reference reading and reporting at third grade level. Time lines, booklets, written reports, displays of children's work indicated that much time was given at this level for related activities between social studies and reading. Music too, was used as a means of coordinating and integrating the area of literature and social studies.

LANGUAGE ARTS AND SOCIAL STUDIES

Conclusions and Recommendations

Arlington School

("General Recommendations" follow the reports at the close of this section. These were intended to be considered as suggestions for all schools.)

Recommendations specific to this school are submitted for consideration. They are as follows:

1. It is recommended that the administration and staff examine time allotments in the daily program. It is possible that the ratio between time for phonics and reading, the skill building activities, is unrealistic in relation to the time set up for the skill application activities. Content areas, social studies and science, appeared to receive less focus because of lack of time.

2. If grouping is used in order to more nearly place pupils on instructional levels in the basal readers, then grouping should also be necessary for phonic lessons.

3. It is recommended that careful testing be done in order to place children in reading materials at instructional level; otherwise the key purpose of grouping is defeated. There are informal as well as structured reading inventories to aid in such placement. It seems unrealistic to place two groups within a classroom, in the same reading book.

4. In order to assure sequential learning from grade to grade, it is urged that a curriculum study be set up at which time teachers can develop written guides to set up goals and activities for the language program throughout the primary program. The Language Arts Guide from the State Department would be of help here, but the uniqueness of the Arlington District suggests that unique goals and procedures must also be determined in order to give greater meaning and depth to the program.

5. It is urged that careful study be made of the reading and language

readiness program. The actual cost of a kindergarten program may be less than the eventual cost of remedial provisions for pupils who had inadequate early childhood opportunities to gain language facility.

If it is not possible to provide such pre-first grade experiences at present, it would seem desirable to provide teacher-aids or a special teacher trained in linguistics and reading, to aid the first grade teacher in orienting pupils into the reading program.

6. It is recommended that efforts be made to secure the services of specialists in psychological testing, speech correction, and curriculum. Teachers could be aided in meeting individual needs of pupils if, at least on a consultant basis, they might refer students for diagnosis and recommendations. This perhaps is an area where several schools could share the cost burden in order to provide such special services. (See "Recapitulation and Conclusions" and end of report.)

7. Because of the conditions favorable to group action at Arlington School it is recommended that some action-research studies be set up to test out some of the newer trends in reading and language.

8. It is recommended that experience charts, compositional language experiences writing, and creative writing be used to a greater extent in grades one and two, and that more stress be placed on independent writing in grades three and four. It is urged that curricular plans for fourth grade include much reference reading and reporting, both oral and written. Interesting oral book reports and short "critiques" of stories offer this age child a chance to develop communicative skills on an independent basis.

It is suggested that class word files, individual dictionaries, and "Words We Need" charts can be of aid in enabling children to do creative writing.

Many of the reading series have now included a glossary in the third grade reader. This trend toward earlier use of pronunciation keys and dictionary usage suggests that dictionary skills must be introduced in grade two and developed rather specifically at third grade level.

9. There is evidence to indicate the need for a careful study of the social studies curriculum. Such a study should provide for:

a. Evaluation of present program.
b. Setting up of goals consistent with needs.
c. Selection of areas and units of study and the grade placement of these units.
d. Selection of additional text materials, maps, globes, films, film strips and supplementary materials.
e. Preparation of a written guide.

10. All conditions would seem to be favorable for an experiment in team teaching in social studies. This suggestion is offered because of the excellent working relationships among the primary teachers, and because it is apparent that each teacher has special talents or skills that would be powerful in combined force.

Harquahala School

As facilities in the new building become available it is urged that the purchase of tables rather than desks be considered for pupils of this primary school. It would seem important that children be seated in face-to-face arrangements to facilitate oral communication. Small group sessions with much "elbow room" for art work and writing are important at this level.

It is recommended that all chalkboards be installed low enough to enable children to practice handwriting at the board. It was noted that "eye-height" on bulletin boards and chalkboards was not appropriate to small children.

If possible, some provisions should be made for language instruction prior to grade one. If it is not feasible to provide a kindergarten, provisions should be made for an extended readiness program with focus on concept development and language training. It is suggested that readiness materials be added to present materials.

Buckeye Elementary District

In addition to the recommendations at the close of this section, the following suggestions are intended to aid the staff of Buckeye Elementary School in their continuous search for excellence:

1. Because of the bi-lingual factor in Buckeye Elementary School, it is important to study the possibilities of offering pre-first grade training in language. The cost of a kindergarten program might be very small compared to the continuing problem of children who fail to live up to their potential because of poor language background. Until this can be done, it is recommended that first grade teachers be aided in every other possible way to reach the wide range of language ability that exists among first grade children.

2. It is recommended that Buckeye Elementary School cooperate with other districts in the area in securing consultant services in speech correction, testing and guidance, and curriculum. (See Item #I of General Recommendations.)

3. It is urged that a careful analysis be made concerning the differences in the sequence of skill development in the phonic program in the Phonetic Keys program, and in the Ginn and Scott Foresman programs. This may be a clue to some of the problems for the slower readers. Adjustments may need to be made for some pupils.

4. The use of experience charts and experience writing may bridge the gap between the formal reading experiences of the basal reader and the actual speaking vocabulary of the pupils. The use of this technique appears to have much merit for linguistically handicapped children.

5. It is recommended that language and social studies guides be developed for the primary grades. The sequential planning from grade to grade, in a program developed by all teachers of the school, would facilitate continuous growth.

6. Additional reference materials for social studies, in sets ample for group study, should be added to library materials. Multiple-level texts are needed at fourth grade level.

7. Carefully study the time allotted to social studies. A larger block of time is needed if depth is to be achieved in social learnings. It is urged that the experience-unit approach to social studies be considered. In such a

plan, the complete integration of language arts and social studies can occur, and in such a manner, a balance of time between skill building, skill application, and content learning is possible.

8. Since many excellent trade books appropriate to the primary grades are appearing on the market, it is urged that a committee be set up to examine and select library materials to supplement present materials. Consultant assistance could be obtained from an institution of higher learning or the State Department of Public Instruction.

Liberty School

Suggestions are offered in "General Recommendations" that may be of help. Hopefully, among them are some that will aid the administration and staff in their search for excellence.

The following recommendations are relevant to this particular school:

1. It is suggested that specialized services be provided to the district in the areas of testing and speech correction. It has been recommended that Liberty District, in cooperation with other districts of this area, secure the services of specially trained personnel to aid in meeting the needs of "exceptional children."

2. It is recommended that some provision be made to provide language training prior to or during the first weeks of the child's first year in school. There appears to be, particularly in schools where the bi-lingual factor is present, a critical need for a kindergarten program. It is recommended that every effort be made to provide this program.

3. If this is not done, it would seem imperative that first grade teachers be given aid in providing an extended readiness program. Teachers aids would permit the first grade teacher to devote more time to small groups for required language training. It would seem advantageous to provide library periods for story reading and other sharing activities. A supervised library period might aid in developing wide interests in reading.

4. Language facility, a strong speaking vocabulary, and the ability to conceptualize are prerequisite to successful reading. Provisions at first grade level in these areas are more productive than the remedial measures often undertaken at middle grade levels.

5. In order to aid teachers in enriching the curricular program it is suggested that a materials center be developed. In such a center could be a strip film file, slides, a picture file, records, tapes, teaching games and aids, and teacher-made materials that could be shared. A "bring one, borrow one" materials "bank" might be developed. Occasional workshop sessions could be held for developing ideas for use of projected materials.

6. It would seem wise to set up a teacher committee to select some of the newer language arts materials. The curriculum library at Arizona State University provides examination copies of much curricular material.

7. It is suggested that teachers of the school be permitted some visitation days in order to study some of the programs in other schools. Such

visits, of course, should be carefully planned in advance.

Palo Verde School

It is hoped that the "General Recommendations" which follow the separate school reports may be helpful to Palo Verde School in future curricular planning. In addition, the following suggestions, related to needs of this particular school, are provided:

1. It is highly recommended that provisions be made for consultant services in the area of testing, speech correction, guidance and curriculum. The needs of exceptional children often require specially trained personnel if they are to reach their maximum levels of achievement. Such services might be possible through some cooperative arrangement among districts. (See "General Recommendations.")

2. It is recommended that provisions be made for pre-first grade training in language and reading readiness. A kindergarten program would appear to be a vital need and the most realistic solution to the problem.

3. Staff members of the primary department should carefully study the problems related to bi-lingual students and to students who have poor speech patterns. In view of the importance of oral communication and the total curricular picture, this would seem to suggest that early diagnosis of speech difficulties as well as improvement of poor speech patterns must take place at primary levels. Speaking ability probably is as closely related to a pupil's success in his continuing education as any other one factor.

4. Probably the best single investment a school can make to insure maximum pupil achievement is in a well staffed and well stocked library. The library section of this report should be given careful consideration.

5. It is urged that the School Board and the administration seek some modification or substitute for the small classroom areas in grades two and three. Working space for grouping activities, and seating arrangements condusive to oral communication is very limited. It would seem advantageous to set up learning centers at these grade levels. A well arranged library reading area, with shelves for display books, reference books and self-help activities invite children to help themselves to be better readers.

General Recommendations-For All Schools

General recommendations related to the primary grades of the four elementary districts visited:

The recommendations that follow are applicable in some measure to all districts. While some are more relevant to some schools than others, it is hoped that each district may find within the recommendations some help and guidance in curriculum planning. The search for excellence is a continuous one. Growth takes place only when evaluation reveals the procedures that brought best results and weeds out those elements that have been less successful.

With the intent that the following suggestions may aid in that search for successful practices, the following recommendations are offered for consideration.

1. Because of the similar nature of the needs of the respective districts, some kind of a cooperative arrangement should be made in order to effect sequential curricular planning and in order to secure additions to the curriculum beneficial for all concerned. (See also "Recapitulation and Conclusions")

   a. Consider the possibility of securing a primary curriculum coordinator who could aid the different districts in setting up curricular guides for the districts. Such a coordinator could serve as a consultant and a liaison figure among the schools.
   b. Consider the possibility of securing the services of a psychologist, a speech consultant, and a testing specialist. These special services would be available to all schools, on a consultive basis. This might do much to coordinate efforts of the various districts.
   c. The shared cost of these specialized services might enable all districts to strengthen services to students and to aid teachers in dealing with problems for which they have not had special training.

2. So many good things were observed in each of the five districts. It would be advantageous that the ideas of one group or one school be shared with others. It is recommended that there be curricular meetings scheduled for primary teachers of all the districts. The combined strengths of all primary teachers meeting as a unit, could aid in cooperative long range planning, as well as the sharing of ideas.

3. It is recommended that teachers of all the schools meet periodically to share ideas and to establish some curricular guidelines for the total elementary program. (See "Recapitulation and Conclusions" at end of report.)

4. Good curriculum planning demands constant evaluation. Such evaluation necessitates long range planning as well as assessment of present needs. In order to study curriculum trends, it is suggested that study be made of some of the experimental programs being carried on in this state or in near-by regions. It would be advantageous to arrange for primary teachers to be released for visitations in some of these areas.

Following are some of the studies in progress that might be of particular interest to teachers in the primary grades:

   a. Individualized Reading Programs --
      Phoenix Elementary District #1, Phoenix, Arizona.
   b. Creative Activities in Kindergarten Programs --
      Arizona State University Laboratory School.
   c. Team Teaching in Primary Grades --
      The Lulu Walker School.
      Amphitheater Schools, Tucson.
      Holdeman School, Tempe Elementary District.
   d. Ungraded Primary Schools --
      Ajo Elementary School, Ajo.
      Amphitheater Schools, Tucson.
      Garfield School, Phoenix.
      Longfellow School, Phoenix.
   e. Language Experience Approach to Reading --
      San Diego County Schools.

f. Basal Reading Through Filmstrips --
(With Ginn and Company materials)
Tempe Elementary District.

g. Initial Teaching Alphabet (I.T.A.) --
(Pittman Method)
Scottsdale Elementary District, Scottsdale.
(Tentative)

5. A newer trend in curricular planning is to set up classrooms as learning laboratories. As such, provision is made for as many independent, self-help learning situations as possible. If children are expected to develop independence and initiative it would appear that they must have many experiences in problem solving situations and in self-directive activities. A study might be made of ways to set up such an environment in a primary classroom. For example:

a. Headphones can be attached to a tape recorder in order that students may listen to pre-taped materials prepared by the teacher.
b. Miniature screens may be set up for small group viewing. Miniature individual film strip viewers are also available.
c. Library areas, made attractive with book displays, invite children to do independent reading.
d. Work materials with coded answer keys may be used to encourage a student to evaluate his own work.
e. Listening laboratory centers provide opportunity for extended individual experiences in language and literature. Headphones increase the utility of such centers without disturbance of other teaching activities.

6. Carefully evaluate the testing program for the primary grades. While standardized group tests give an indication of group attainments and group needs, quite often they may not offer valid data on the individual pupil, particularly the exceptional child. Individual testing is very necessary as a follow-up to a group test for those students who fall into the high or the low range of ability or achievement and for those students who have social and emotional problems. Such individualized testing is a specialized area requiring specially trained personnel.

It is apparent that a number of students need individual testing and evaluation if they are to achieve to their maximum potential. It is believed that many learning problems and emotional frustrations could be prevented by early diagnosis of the causes contributing to the problem.

Testing is of little value unless a careful evaluation is made of test results.

It is strongly recommended that the services of a specialist in the area of testing and guidance be secured to aid teachers in diagnostic procedures, in evaluation of test results, and in subsequent guidance as a follow-up to the evaluation. These consultant services need not be full time, but should be carefully scheduled to permit maximum benefits to accrue to children and teachers.

7. It is highly recommended that all four elementary districts carefully study the merits of kindergarten training. The great need for language training for the children entering school is very evident. The possibility exists that the number of retarded readers in middle grades could be significantly reduced by the provision of a strong readiness program and for English instruction prior to the first grade level. The high rate of retention and the

subsequent drop out might suggest that such provisions could be justified from many standpoints.

In the interim, until kindergarten provisions might be made, it is recommended that first grade teachers be given aid in providing a readiness program. The part time services of a teacher having training in linguistics and early childhood education would allow first grade teachers more time with each child. Special aids might be provided to help with language training.

LANGUAGE ARTS

Listening.

1. Current research gives valid evidence that listening skill can be taught and that this skill is apt to be the most neglected of all language arts areas. In view of the amount of time spent in listening in a school day, it would seem advantageous to carry out some experimental work in the primary grades in order to evaluate children's listening habits and to test out the effectiveness of present training in this area.

2. It is highly recommended that teachers of all primary grades observe the excellent listening centers that have been set up at the Buckeye Elementary School and Harquahala School. Such laboratory type provisions extend pupils learning experiences within the classroom and serve as a means of giving children special assistance in developing listening skill. Simpler centers can be provided by attaching headphones to tape recorders.

Reading.

1. Continue to experiment with grouping methods for reading instruction. The only purpose of grouping is to come nearer to the child's instructional level. The moment a child reaches his recreational reading level in the basal reader, he needs to be placed in material that has greater challenge. At the same time, a child reading at frustration level, only compounds his problems in reading and usually develops emotional problems as well. Flexibility in grouping permits the transfer of a student from group to group in order to keep him at his instructional level.

2. Explore the merits of individualized reading particularly at 3rd and 4th grade level, as a means of better meeting the needs of rapid learners. Some teachers report success in planning certain days of the week set aside for individualized reading and individual conferences for the entire class. Others have placed the "so called" fast group on an individualized plan.

3. Cooperatively evaluate the present daily schedule with a critical look at time spent in each area. Examine carefully the time spent in the skill-building aspects of reading in comparison with time spent in skill application. Research indicates that reading skill building must be taught within the content areas as well. There are studies to show that when emphasis is placed on reading in science, social studies, and arithmetic, comprehension skills increase and the pupils make more rapid gain in independence.

4. Continue the excellent provision for word analysis skills but consider the possibility of reducing the number of phonics lessons per week in order to place equal attention on comprehension, interpretation and the reading-thinking

skills.

It is recommended that pupils be grouped for phonic instruction. Provision has been made for this in some schools, but in others the total class worked at the same level in phonics, yet were grouped in the basal readers. More able students do not require lengthy periods of phonic practice, less able need more, more individually tailored practice sessions with much focus on listening to the sounds and pronouncing them aloud.

5. It is strongly recommended that the sequence of skills in Phonetic Keys and the Ginn and Scott Foresman readers be compared. Some agreements should be made concerning the differences in the sequences of the phonetic and structural analysis skills. This is particularly important in relation to the introduction of vowels and consonants.

6. It would be well to carry out an evaluation of the results of the present experiment with the phonic program. The results of the program should be measured in terms of comprehension and interpretation abilities as well as word analysis skills. Reading achievement test scores need to be analyzed carefully in terms of the measured abilities of the individuals.

Research studies tend to indicate that the less able students are often frustrated by the abstract nature of phonetic principles. There is some evidence to support the idea that slower learning groups profit more from the language experience approach to reading than the highly structured phonetic approach. This suggests a need for careful appraisal.

7. It is further recommended that a concentrated effort be focused on interpretation skills. Habits of critical and creative reading depend to a great extent upon the learning experiences in the primary grades. The questions that teachers ask, by and large, determine the level of interpretation that children reach. The simple techniques of guided study set the stage for levels of interpretation.

"Who?" "What?" "Where?" "When?" questions lead to recognition of facts and information.

"How?" "Why?" "In what way?" questions lead to comprehension.

"How do you feel about it?" questions demand self-commitment, judgment making, and evaluation.

"What will you do about it?" questions integrate these levels of thinking to the point of application.

8. It is suggested that careful scrutiny be made of the time spent in oral reading as compared to the time spent in guided silent reading. Purposeful oral reading requires a listening audience. Observation was made of a reading class in which children were dramatizing the story. Such activities extend interpretation and expression. Slower pacing of the basal reader allows for exercises and activities designed to enable a pupil to recall details, follow the sequence of a story, organize ideas, form sensory impressions and interpret pictured stories.

9. Primary teachers would probably find some of the newer co-basal literary readers, such as those published by the Laidlaw Company, to be very helpful as means of stressing literary appreciation. It is urged that every opportunity be utilized to continue the use of cooperative experience writing as means of

extending vocabulary and strengthening interpretation. These forms of reading experiences are particularly recommended for the readiness classes and the less mature students.

10. It is strongly recommended that guided reading experiences in content or informational type reading be stressed beginning at second grade level. Research points out that skills taught in the basal reading program do not necessarily carry over into content reading. Purposes and techniques change when reading for information and detail. Vocabulary problems arise as words are used in new and unfamiliar context. The need for multi-level content material is very pertinent at this level.

Presently many excellent supplements or special interest readers are being published. The Little Owl Series published by Winston Company is an example. Written at grade level, these books have high appeal and give needed emphasis in the content areas of science, math and social studies. It is strongly recommended that teachers have an opportunity to study some of the newer publications and order them to supplement library materials. Examples may be found in the Curriculum Library at Arizona State University.

11. Often library reading is left as a "spare time" activity and the slower child is penalized by not completing assignments in time to read library books. It is wise to schedule so that definite time is set aside for all children to read independently and to share in some way the things he reads.

12. Review research coming out of the San Diego County study with the Language Arts Experience Approach. Dr. Van Allen and Dr. Doris Lee have much valuable information concerning the success of this approach in areas where the bi-lingual factor is involved.

The practice of composing charts and stories based on a commonly shared experience provides many advantages. It is a means of closing the gap between the controlled vocabulary of the basal reader and the actual speaking vocabularies of pupils. It is a means of increasing the sight vocabulary that is so important in independent reading. It automatically provides a means of teaching acceptable language patterns and of teaching word order, sentence sense, grammatical word order, and syntax. This linguistic approach would seem to merit serious consideration in all of the districts.

Speech and oral communication. However keen our powers of observation, our ability to read and to concentrate, our skill in writing, eventually we are probably judged more by the way in which we speak than by any other one factor. Speaking patterns are largely formed during the first eight years of an individual's life. Changes that are made after that are slow to come, laborious to achieve, and difficult to maintain. Primary teachers are charged with the tremendous responsibility of setting the stage for good speaking habits.

1. It is recommended that the services of a trained speech therapist be made available to assist teachers with instruction for speech correction and particularly for aid in diagnosing speech problems. Such consultant services need not be full-time, but should be scheduled to facilitate maximum planning and utilization. (Refer to "General Recommendations.")

Scott Foresman Company provides a package of materials and aids for helping teachers identify the nature of the speech deviation. Cards are furnished to aid in correcting problems of faulty enunciation and articulation. Careful checks on hearing need to be made periodically to ascertain each child's ability to hear speech.

2. Children learn good speech patterns by hearing them. The teacher model is perhaps the best single instrument for affecting speech improvement. Enunciation, tone quality, rhythm and variety are demonstrated as the teacher reads stories and poetry, gives directions, and speaks before the class. Many good recordings of story-telling and poetry are available as further aids to the teacher.

3. It is strongly urged that more informal face-to-face seating arrangements be provided in primary rooms in order to provide a better speaking, listening environment. First and second grade teachers may wish to consider the use of tables rather than desks.

4. It is suggested that dramatization, role playing, choral reading, and puppetry be used to promote increased speaking ability. The shy child, particularly, forgets himself as he manipulates a simple "sack puppet" to become "Peter Rabbit in Mr. McGregor's Garden."

Writing and Spelling. It is recommended that children at kindergarten level begin formal writing experience at the chalkboard or on large sheets of newsprint.

1. Consider the possibility of having less mature pupils continue the use of manuscript writing at third and fourth grade levels. This might reduce the frustrations of transfer from the printing reader to the writing alphabet.

2. It is recommended that greater emphasis be placed on creative writing. The strands of communicative skills appear to become intertwined to form a cable of language power when children compose written material. Thinking skill, phonic generalizations, reading skills, grammatic order, syntax, spelling and handwriting reach an automatic level of application when children explore a topic, develop ideas and concepts, and then verbalize those ideas, finally producing them in written form. Individual vocabularies are developed as a child searches for words to express his ideas.

Creative writing puts high demand upon the availability of words for personal use. Research studies reveal that the listening vocabulary of six year olds ranges from 1500 to 35,000 words. The restrictiveness of the controlled vocabulary of the spelling book and the basal reader in terms of words children know and understand, suggests that creative writing is one means of closing the gap between thinking and reading vocabularies.

3. Individual dictionaries for all pupils permit them to become more independent in their writing. These can take the form of small indexed files at grade one and become indexed booklets at grades 2, 3, and 4. At grade 4, when specialized words become important, each child might develop his own social studies dictionary, and science dictionary.

Class word files available as reference for all class members can be developed cooperatively. Special holiday dictionaries appropriate to season might be set up in a color coded manner--green for Christmas, orange for Thanksgiving, red for Valentine, etc. The word cards so color coded, later are easily identified when they are placed in the general file in the accumulating class word file.

4. The excellent self-help word pockets seen in one primary room provide an excellent means of "programmed" instruction. Busy teachers must find ways to better aid children in helping themselves.

5. It is urged that spelling be closely integrated with other subjects and that word lists be made up of high priority words needed for classroom writing.

6. It would seem wise to use both the incidental method and the core list (spelling text) method of teaching spelling in grades two and three. The spelling period offers an excellent opportunity to review all appropriate phonetic and structural analysis skills. At the same time, the grammatical function of the word can be taught as the word is used in different context, and as the derivational and inflectional forms of each word are shown.

SOCIAL STUDIES

While it was apparent that teachers of the districts visited were giving children excellent experiences in group action, school community living, and holiday observance there was evidence to indicate the need for a curriculum study in the social studies area.

Such a study should provide for:

a. Evaluation of existing program.
b. Setting up goals that are appropriate to the primary level and consistent with the total school program.
c. Selection of areas of study.
d. Agreement on grade placement of general areas of study.
e. Setting up of a flexible scope-and-sequence plan _to be included as part of the sequential plan for the eight elementary grades_.
f. Selection of text materials, supplementary reading materials, children's newspapers, maps and globes.
g. Selection of films, film strips, records and pictures related to the areas selected for study.
h. Preparation of a written guide.

1. A new _Social Studies Curriculum Guide_ was made available by the Arizona State Department of Education in the fall of 1964. This material should be of great help in assisting staff members in their efforts to plan and build a social studies program. The need to build a sequential plan for all grades is stressed.

2. It is recommended that consideration be given to (some) team teaching. Many schools are having success with team teaching efforts in the area of social studies. Because of the physical set-up of the school, the close working relationship among teachers, and because of the number of teachers who have outstanding talents in special fields, it is suggested that such a program might be feasible. When careful planning is done, it appears that many benefits accrue from team teaching.

3. Investigate community resources that may be utilized. Compile a list of resource people that are willing to share their skills with pupils. Study the "yellow pages" in the telephone directory and other means in search of community resources appropriate to utilization by the school.

4. Begin to build a film strip file of materials appropriate to the primary grades. Film strips have many advantages in terms of utility and availability. Many film strips are available in the area of reading, literature,

and social studies. Many schools are now developing their own film strips designed to meet specific needs. Such a file might be set up in the library to facilitate its availability to all teachers.

The following quotation is taken from David Russell's book, Teaching Children to Read:

"In grades one and two, reading does not vary greatly in different situations, but from third and fourth grade upward it must be considered to be a complex process composed of a number of different activities. There is probably no such thing as a single reading ability, but there are different abilities which apply to different situations. Reading to find one or two specific facts is quite different from reading to discover an all over sequence of events. .... methods and rate of reading must be adjusted to the purpose..... No child has been taught to read effectively until he can read in various content fields, such as health, arithmetic, and social studies.... The common problem encountered in content reading....technical vocabulary, a unique type of organization or pattern of thought, and special devices such as maps and charts require a special kind of reading skill."

Research clearly indicates a need for serious study concerning the attention being given informational or work-type reading. It is highly recommended that teachers of third and fourth grade study this problem carefully, evaluating present methods of aiding pupils in "reading" arithmetic problems, material from weekly readers, social studies, and science textbooks.

It is further recommended that multiple-level content materials be made available to pupils of these grades.

Probably at no time in the individual's school life are study habits more important than at third and fourth grade levels. Ineffective organization of time and materials, lack of ability to concentrate, and irresponsible attitudes toward study can develop to the extent that the pupil will be handicapped throughout a child's school life.

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LANGUAGE ARTS

Grades Five, Six, Seven, and Eight

Point of View

Language is a means of communication. Communication is a two-way street. It may be either oral or written. It includes both intake and outgo.

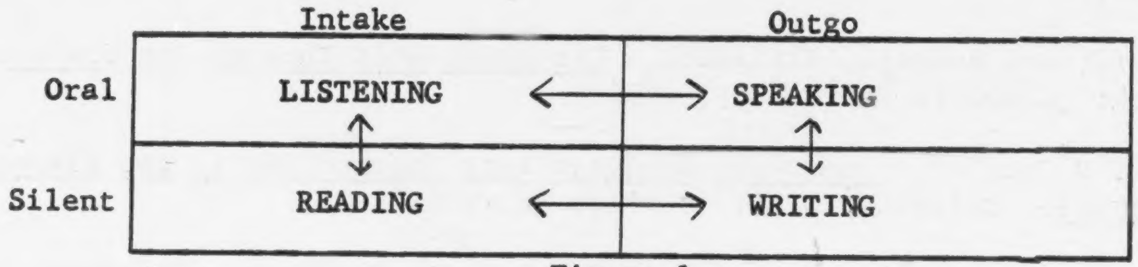

Figure 1
Language as Communication

Listening is a young child's first experience with language. Throughout life most of what he learns comes through listening. In order to listen effectively he must have an adequate meaningful vocabulary and understandings built on concrete experiences. Purposeful and effective listening skills need to be taught.

Speaking is an accomplishment which most children acquire long before they start to school. Speaking is the child's means of communicating his thoughts to others. It is the responsibility of the school to help him refine and improve his speech skills through oral practice on correct usage and through much purposeful oral communication in all areas of the curriculum.

Reading is another intake avenue for learning. It differs from listening in that it involves the printed word. In order to use reading as a means of getting ideas the child must master the printed symbols so thoroughly that their use is automatic. This mastery of the mechanics of language may, or may not, result in comprehension of the ideas expressed. Comprehension, which is the real goal of reading, must be taught and stressed from the beginning.

Writing is the use of the symbols of language to express ideas. In order for communication to take place the writer must master the skills. Legibility in penmanship is a necessity and a courtesy to those who will read what has been written. Correct spelling is a matter of accepted practice which makes the written word more easily comprehended.

Observations and Commendations

Arlington School

There was observable evidence that persons responsible for the program in the intermediate grades at Arlington School have felt a concern for the improvement of language skills and have taken positive steps to do something about it. The evidence can be cited in two major categories; namely, materials and administrative organization.

Funds were provided to purchase needed materials. New textbooks having a fresh appeal to interest were evident in the classrooms. In addition, the room for remedial reading was equipped with many of the latest materials from teaching machines to teacher-made charts. Encyclopedias were on the shelves in the remedial reading room and some older sets were in the classrooms. There were additional sets in the library. Language books and accompanying workbooks, as well as spelling texts and workbooks, were also in use.

Administrative measures had been taken in an attempt to facilitate a more effective setting for the improvement of the language arts. There was a ninety-minute period each morning during which the pupils in grades six, seven and eight from four rooms were regrouped by achievement levels for instruction in reading and language. There was one upper group of sixteen pupils who showed maturity and exceptional ability. There was one lower group of twenty-six pupils who were sub-divided into two groups in the classroom for instructional purposes. The other two groups included a spread of three grade levels of classification and an even wider spread in ability and achievement.

In general it appeared that the predominant teaching techniques used were oral reading from the textbook with some discussion, followed by drill exercises from texts or workbooks. Some challenging materials and experiences were noted. On one chalkboard was a list of words and terms relating to a unit on communication. One lesson in progress challenged pupils to give effective titles for stories. A bulletin board depicting current events indicated use of reading skills for comprehension and interpretation. On a shelf was an interesting collection of current clippings classified in file folders under various headings.

The pupils appeared to be at ease and willing. Most of the teachers, although originally secondary trained, were adapting their teaching to elementary grades.

The testing program, which included both mental tests and achievement tests, showed promise of providing much valuable information for diagnosis and effective planning. The schedule which was designed to permit one teacher to render testing service to all classrooms was additional evidence of financial and administrative concern for the improvement of instructional and curriculum opportunities for the children.

Buckeye Elementary School

There is a saying, "The teacher makes the school."

It was impossible to generalize on a school as large as Buckeye Elementary School. There was great variety in teachers and their backgrounds, in classrooms and their appearances, and in materials and programs of instruction. One can only point out some of the qualitative factors and some of the observable evidences.

The new Ginn readers appeared to be basic throughout the intermediate grades. They were accompanied by the workbooks and in some instances also the self-help work sheets. The most common practice observed was the oral reading of the text followed by some discussion and the drill work provided by the workbooks, work sheets, and manual. There was evidence that most of the slower readers were carried along with the class group, however in one room a small group was working with Readers Digest Skill Builders while the rest worked on the basic assignment.

Some rooms were utilizing the help of high school girls to provide extra practice in oral reading for the slower learners. There were library books in most of the rooms and access to a centralized library for recreational reading. The extent of use depended on the abilities of the children and the initiative of the teacher. The need for easy material with high interest level was expressed.

There was a language text and a spelling text through the eighth grade. Use of workbooks in these areas was not common practice. Some teachers reported creative writing ranging from once a week to once or twice a semester. Checking the papers seemed to be the major problem, thus limiting the number of themes.

Evidences of individual differences, records of progress, and evaluation appeared in the form of spelling progress charts, duplicated forms for book reports, file card records on individual children, and personal composition books. In some instances continuity was provided by having the same group with the same teacher for two different periods daily including language and literature.

There was a well equipped and carefully organized Reading Clinic where individual differences were emphasized. Listening was stressed. Pupils were carefully selected and self-evaluation was practiced. Books were plentiful and interesting with little emphasis on grading. The program was limited to grades five and six and to two periods daily.

The testing program for the building was carried out by the same teacher who taught in the Reading Clinic. This provided useful information for the selection of pupils who could benefit by the remedial program. It also provided the teachers with diagnostic information which was helpful in planning for effective classroom teaching.

Liberty School

The children at Liberty School had an opportunity to check out library books for personal reading. In addition a reading room was provided where pupils not in class went to read periodicals and newspapers. These were supplemented by the "book room" where sets of books were available for class use. There were sets of new dictionaries ~~in some~~ of the classrooms. New basic adoptions in reading, language, and spelling were provided for each pupil. Most of the encyclopedias were older. Materials for reading and language arts seemed to be adequate.

There were activities in progress which indicated use of language skills in functional situations. The publication of a school newspaper once a month provided an outlet for writing and for individual responsibilities in collecting the news and organizing activities. Collection of free materials for social studies gave real purpose to letter writing. Creative stories and poems were in evidence on at least one bulletin board. Files of work in progress in one room indicated an on-going program with interest from day to day.

Some satisfactory oral reading was observed in one social studies class. There was evidence in some rooms, however, that not all oral reading was of this quality indicating variation in abilities and needs. Oral reading in a testing situation seemed to be the accepted pattern. Discussion for understanding followed the initial attack through oral reading. More emphasis was placed on correct pronunciation than on expression or comprehension.

Plans for Christmas (the visitation was in December) permeated the atmosphere and the children and teachers appeared harmonious and expectant. There was evidence of genuine concern for children and their learning needs.

Palo Verde School

The general appearance in the intermediate grade rooms at Palo Verde School indicated a concern for language experiences. Charts and displays on bulletin boards, chalkboards, and walls gave evidence of reading, thinking, planning, recording, and reacting.

Pupil participation in the work at hand was obvious. Costumes for a forthcoming program, paint and poster paper for murals and scenery, "props" for stage settings, and seasonal decorations all indicated that the pupils were using their communication skills as they went about their daily work.

The enthusiasm of the teachers was contagious. The children were responsive and at ease. They were active, and at the same time, self-controlled. They went about their tasks in a business-like manner and were willing and eager to show visitors what they were doing.

Materials indicated breadth of interest. There were bookshelves along the walls with dictionaries in quantity, and a variety of books for reading and studying. The social studies concepts had been used in language activities to develop charts depicting stories of the early development of our country. Encyclopedias were on the shelves in the classrooms ready for immediate use. Charts and word lists indicated that there was an on-going program to enlarge vocabulary.

Readers were accompanied by workbooks for each child. Both the hard bound and the consumable speller were provided. There was a language text and, in addition, a workbook from a different publisher.

The tape recorder had been recently used to record book reports. The children were observed listening to the reports intent on evaluating content and form.

In at least one room, movable furniture was informally arranged to permit group work.

Conclusions and Recommendations

Arlington School

The pupils in Arlington School were being provided with many excellent materials and were organized into teachable groups. Rapport appeared to be satisfactory. The setting seemed to be ripe for maximum growth. The following recommendations are offered as a means of building on what already exists and moving forward in instructional areas:

A. Instructional Practices:

1. Indicate a single block of time for the whole language arts area thus freeing groups to pursue unified topics rather than page assignments in separate subjects.
2. Encourage the use of social studies topics to provide learning activities utilizing language arts skills. Include individual reports, original stories, and personal letters.
3. Provide a higher degree of individualization by organizing the pupils into working teams with opportunities for more self-directed activities.
4. Increase opportunities for self-expression through subdivision of groups for planning, sharing of reading interests, developing creative activities and organizing and summarizing information. These suggestions call for rearrangement of furniture into workable patterns and teacher management of sub-groups.
5. Provide guided reading in content areas in small groups. Teach pupils to read to find cause and effect, to interpret motives, to infer meanings, to evaluate word choice, and to make judgments about propaganda.
6. Extend the reading and literature program to encourage more outside reading. Provide opportunities for sharing reading experiences in small conversational groups, book clubs, and out-of-school activities.

B. Materials:

1. Purchase supplementary books in sets of eight or ten for use in sub-groups and move them out into the room on tables or open shelves where they can be used regularly.
2. Make current encyclopedias and reference materials readily available in the classrooms to encourage their daily use.

C. Testing Procedures:

1. Expand the use of test results by providing diagnostic studies of individuals as well as groups. Information already available could be effectively used to set levels of expectancy, compare achievement with capacity, and determine appropriate assignments of children to remedial groups.
2. Develop a form for summarizing and reporting test results in order to show the extent to which children are achieving in relation to expectancy. (See Supplement A for sample form. Further help will be given on request.)

D. Remedial Reading:

1. Determine the purpose for the remedial room. Is it to take care of low ability or to provide constructive remedial help for pupils with identifiable defects and enough ability to justify expectation of growth?
2. Put the remedial reading program on a more individualized basis by diagnosing cases to determine (1) present level of reading

ability, (2) extent of deviation from capacity, and (3) apparent causes of difficulty. Then provide instruction in skills as needed and reading material on an individualized basis. Select material to meet the following standards:

a. Highly interesting content
b. Textbooks not previously seen by the children
c. Trade books, graded in difficulty
d. Skill building programs to meet needs of children with specific difficulties. Once a difficulty has been identified and a remedial program selected, pursue it rather than trying to utilize several different programs simultaneously.

Note: See Bibliography for recommended list of books.

E. Finally:

Provide more opportunity for teachers to plan together as a team in order that language arts skills may carry over into the other areas of the curriculum.

Buckeye Elementary School

In a school as large as Buckeye Elementary there is need for coordination of effort to provide a comparable program for all children. This calls for study committees among the staff and leadership responsibility within the school. In order to carry out such a program, two kinds of faculty committees are recommended.

A. Horizontal committees are needed made up of teachers working at the same grade level. They need to study the materials available and the curriculum content in order to make recommendations for some common experiences for the children.

B. Vertical committees are needed made up of teachers at succeeding grade levels. They need to study the sequences in the program in order to identify curriculum topics and reference materials by levels, then make recommendations which will insure continuity in the program without overlap of content or duplication of materials.

Some more specific recommendations for classroom practices are centered about the need for more individualization of instruction. These apply to both language expression and reading.

1. Teach children to proof-read their own work with partners. This reduces the amount of teacher time spent on correcting papers and puts the responsibility on the learner.
2. Use the opaque projector for class evaluation of written work, thus letting all benefit from the shared experiences.
3. Group within the reading classes using pupil leadership to challenge the more capable ones thus freeing the teacher for extra help for the slower learners. This necessitates the regrouping of furniture and the use of different levels of reading materials.
4. Motivate written expression by providing an outlet for themes through class or individual booklets, a school magazine, or newspaper. The remaining suggestions involve administrative changes which may affect the entire staff as well as the program.

1. Make wider use of the Reading Clinic. This means more periods per day and service to more children. Such a well equipped clinic and such good services need to be extended.
2. Make more use of test results. Project measures of capacity to correspond with date of achievement testing and set attainable goals. (See Supplement A for sample form. Further help will be given on request.)
3. Carrying out the above suggestions may necessitate two different persons, one for the Reading Clinic and one for the testing program.

Liberty School

Numbers of children in classrooms were manageable. Materials were adequate in amount. The atmosphere was conducive to effective teaching. The following recommendations are offered as a means of continued growth and improvement in the teaching-learning situation.

A. Materials:

1. Move the materials from the book room out into the classrooms where they will get more frequent use. In some cases this may mean cutting up older discarded books and mounting stories or articles to fit class units.
2. Buy supplementary readers in sets of eight to a dozen and make them available in classrooms. Provide several different levels of readers in each classroom to meet individual differences in reading level.

B. Methods of Teaching:

1. Put more emphasis on reading-for-meaning through directed silent reading preceding the oral reading and discussion.
2. Make greater use of questions beginning with "Why," "How," and "What if--," to stimulate thinking. These types of questions would replace the factual questions beginning with "What," "Where," or "When," which often can be answered with one word directly from the text thus stimulating little thinking or constructive response.
3. Encourage small group and independent reading to extend the learnings of the more capable pupils. Use library books, supplementary readers, reference materials in content subjects, and current periodicals and newspapers to challenge them.
4. Provide for slower learners by using reading material on lower levels to meet their needs. They can work in pairs, read to another pupil, and spend part of the period with the teacher for direct instruction.
5. Give the "middle group" opportunity to read silently in response to directed questions prior to the class discussion. This gives them responsibility and creates time for work with the other groups.

Palo Verde School

The teachers in Palo Verde School are to be commended for having established good rapport with the children and the community. There was evidence of concern for individuals and for an on-going program beyond the end of the school day, beyond the end of the school year, and beyond the borders of the school grounds. Much good teaching appeared to have its origins in a genuine concern for pupils rather than for an over-emphasis on mastery of subject matter for its own sake. Probably because the community is somewhat isolated and self-contained, there was a tendency to emphasize strictly local needs. This practice is good but it also limits perspective.

In view of the above observations, the following recommendations for extending the program are offered:

1. Provide an opportunity for the teachers to contact schools in other localities to see materials, activities, standards of accomplishment, and plans of organization. This does not imply that they should imitate what they have seen, but it would broaden their horizons, give them greater perspective, stimulate them with new ideas, and provide a measuring stick with which to evaluate present practices.

2. In the reading program place more emphasis on independent reading, interpretation, and evaluation. Have the children analyze the author's purpose, note vocabulary and style of writing, predict outcomes, judge effectiveness of organization, and learn to "read between the lines" to infer moods, character traits, and goals.

3. In language supplement the skill building program offered in the workbook with more original writing to organize information and communicate ideas. Stress purposeful communication and originality.

4. In spelling use both the text and the workbook to vary the program for the more alert pupils. Individual progress might be promoted by having paired groups check each other while proceeding at their own pace, thus covering the material more rapidly than the rest of the class and perhaps extending coverage to other more challenging word lists such as seasonal vocabulary, terms related to social studies or science, and extended meanings through compilations of synonyms, antonyms, and studies of word origins.

5. Capitalize on the combination of two grade groups to the classroom by providing more "cross-current" grade grouping for individualization of study and interest groupings. For example, center library reading about topics such as dog stories, hero stories, or pioneer stories, then group children according to interest rather than grade level or ability level and let them share reports. Or plan drill exercises in language or spelling around needs and mix grade level groups for needed remedial work. Or let an older pupil help two or three younger pupils with special problems.

General Recommendations-For All Schools

In as much as there is some similarity in types of communities served in the four schools; and in as much as they all send their graduates to the same high school; the following general recommendations are offered in addition to those already made for the separate schools.

1. When future considerations are given to the selection and buying of

textbooks in areas covered by state adoptions, appoint committees representing all four schools and let them work together with the intent of making a single recommendation which all can accept. The buying of supplementary books could provide for definite differences in needs from one school to another.

2. Appoint joint committees to study the needs served by the testing programs and plan for some uniformity in the administration and interpretation of test results. This is especially important at the eighth grade level where such a plan would provide comparable test results on all pupils entering the ninth grade.

3. Organize curriculum study committees to represent all the schools and make plans for them to work together sharing their findings and recommendations regarding content, materials, and teaching procedures.

SUPPLEMENT A

Suggested Form For

Analysis of Achievement and Capacity in
Language Arts, Grades 5-8

Grade Level _____ Mental Test Used ______________________________

Date ____________ Achievement Test Used __________________________

Room ____________ Subject ____

Name	*CA	IQ	*MA	+IGP	Ach. Score	Deviation	
						From G.P.#	From Cap.#

* CA and MA brought up to date to correspond with the date of achievement testing. Read Current MA from IQ Calculator chart.

+ IGP read from IQ calculator chart in column corresponding to MA.

# Deviation computed by comparing achievement score first with Grade Placement then with IGP. Express the difference as [+] or [-] quantity.

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Best of Children's Literature Series. Indianapolis, Ind.: Bobbs Merrill Co. Inc. Six books graded one through six containing literary selections for supplementary reading.

Button Family Adventure Series. Chicago: Benefic Press. Twelve titles at Primary level. Highly interesting content to supplement basic reading.

Cadmus Books. Eau Claire, Wis.: E. M. Hale & Co. Graded reading program correlated with subject areas. Selected from the best of children's literature. Useful for supplementary reading and individualized reading program.

Childhood of Famous Americans Series. Indianapolis, Ind.: Bobbs Merrill Co. Inc. Approximately 150 titles for grades four and above. Biographical.

Cowboy Sam Series. Chicago: Benefic Press. Fifteen titles of high interest for supplementary reading from primer level through third grade.

Dan Frontier Series. Chicago: Benefic Press. Series of seven titles ranging up to and including third grade reading difficulty. Higher interest level.

Golden Rule Series. New York: American Book Company. Sometimes referred to as the modern McGuffey Readers for grades one through six. Emphasizes moral and human relations.

Landmark Books. New York: Random House. This is a series of American and World History books for ages nine and up.

Treasury of Literature Series. Charles E. Merrill, Books, Inc. Classical stories for grades three through six.

The Wonder-Story Books. Evanston, Ill.: Harper & Row. Supplementary readers containing traditional and classical stories.

SOCIAL STUDIES

Grades Five, Six, Seven, and Eight

Point of View

Most curriculum guides in Social Studies indicate the need for critical thinking, organization of information, evaluation of facts, interpretation of relationships, and application of principles. In spite of this, textbooks, workbooks, and classroom procedures are often filled with fact questions to be answered. Part of this may be due to tradition, but much of it is probably attributable to the urge to measure and evaluate in terms of scores which can be translated into marks.

If children are to learn to live as members of social groups, they must work together instead of in isolation.

If they are to learn to respect the ideas and opinions of others, they must have opportunities to exchange ideas and opinions in face-to-face relationships.

If they are to learn to gather information for the purpose of drawing conclusions, they must have experiences in searching all available sources for information converging on given problems.

If they are to learn to organize and evaluate facts, they must have access to facts from different sources with the opportunity to decide on types of organization and with responsibility for carrying out plans.

If they are to learn to do critical thinking about social problems, they must face the problems, gather the facts, and choose from among the various possible solutions.

All these activities, and many more, do not preclude the gathering of facts, but they make the facts serve as means to ends rather than as ends in themselves.

The social studies furnish the "meat" for much of the thinking in the classroom. They serve as a vehicle for the practice of language skills. They unify the total day's activities in the classroom. They blend together the curricular offerings in all areas.

Observations and Commendations

Arlington School

It appeared that in Arlington School the chief source of information for the social studies program was the text book. There was one text for history and another for geography. In the eighth grade a text in "Citizenship" was added. The Junior Scholastic magazine was available for current events.

There was an inflated globe in each classroom. Limited numbers of wall maps were in evidence. At least one pupil-made map with a current study of state governors was in view. A commercial map indicating what a map tells was in one room. Clippings on one bulletin board indicated an interest in current events. One group was correlating a study of Greek myths with the study of Greek history.

The program schedule showed geography and history in separate periods in the school day. In at least one situation these two came at different times in the day. This would imply a separation of subject matter and a distinct division in the teaching.

The supply of supplementary reading materials in the social studies seemed limited in comparison with that available in the field of reading.

Conversations with the teachers elicited the fact that there was a definitely planned body of subject matter indicated for each grade level and that the plan was followed by use of text books that adhere to the prescribed topics. If there was a written curriculum plan, it was not in evidence.

Buckeye Elementary School

The sequence in scheduling classes and the use of a unified text in social studies indicated a close relationship between the subject matter areas of history, geography, and citizenship. Encyclopedias were on the shelves in most of the classrooms. The availability of the library made pupil research and group or individual reports practical. Selections from National Geographic Magazine had been bound into units for reference in one room. There were bulletin boards with teaching materials such as a collection of pictures of points of interest in Europe, reproductions of the Constitution of the United States, and seasonal murals. There were some good maps.

All these materials made possible a unit approach to the teaching of social studies. There were scattered evidences of the use of applied skills. These included bulletin boards centered around topics, individual project maps made at home, work tables with projects under way, displays of clay models, development of time lines, and plans for a trip to see the museum. In one room outline form had been used effectively to summarize factual information, thus integrating the work in the language arts with the content in social studies. Another class was drawing sketches for a model community.

The extent of application of the problems approach and the use of available materials seemed to depend on the point of view of the individual teacher. The spread of abilities in the classes indicated a need for this type of work.

In spite of available materials, effective scheduling, and apparent need for individualization, the most common approach to teaching seemed to be the reading of the textbook followed by writing in the workbooks or answering the questions at the ends of the chapters. One class was memorizing the states and their capitols. In another class there was a duplicated list of fact questions to be answered by reading the text. In addition to the workbooks, some classes were using the unit tests accompanying the textbooks. These were scored numerically and tended to emphasize memory for facts.

Liberty School

It was the week before Christmas. The children were busy with preparations for a program and for the forthcoming holiday. The atmosphere reflected a spirit of cooperation between pupils and teachers. The children were busy decorating the rooms, making murals, constructing "props" for the play, and rehearsing. The fact that they could work independently and could pursue a project without direct teacher supervision was proof that they were mature enough and dependable enough for a sound program based on individual progress, group projects, and self-initiated activities.

The pupils reflected pride in accomplishment and were eager to tell visitors about their work. The worthwhile activities they discussed included developing Christmas murals, constructing animals from paper mache, engaging in contests for the best masks, publishing a school paper, painting Christmas windows, collecting art reproductions and writing for free materials about other countries.

The class work in social studies seemed to be limited mostly to a single textbook. Questions observed on the chalkboard were of the factual type. Most of them started with "What," "How many," or "When," and could be answered with one word quoted directly from the textbook. Some of the questions gave an alternate, for example, "Was it this--- or this---?" which permitted random guessing. Bulletin boards were filled with duplicated drawings leaving little space for developmental projects such as a display of pictures containing information about a unit being studied. Shelf space was limited in some rooms and a variety of books for research work was not in evidence.

There were some encyclopedias in the classrooms. The following were noted: A 1937 edition of Standard American Encyclopedia; a 1940 edition of Book of Knowledge; a 1947 and a 1948 edition of World Book; a 1958 edition of Junior Britanica; and a 1960 edition of Book of Knowledge.

The use of separate histories and geographies (and the scheduling of separate periods on the program for the two subjects) indicated a division of subject matter in these areas.

A number of maps were old. Current ones which were observed were from Weekly Reader, Junior Scholastic Magazine, and National Geographic Magazine.

Palo Verde School

The social studies program in Palo Verde School appeared to be based chiefly on textbooks for both content and sequence. The combinations of classes resulted in duplication of textbooks and programs in the rooms. This could be advantageous. There was one textbook for history and another for geography. This tended to imply separate history and geography programs. However, the sequence of the schedules put the two subjects in proximity and implied a coordination between the two areas.

Evidence of pupil activity and interpretation of concepts in social studies areas was observed in all rooms. This included charts on the walls, time lines across the top of the chalkboard, art work with historical themes, picture stories of historical characters, and exhibits on tables.

Encyclopedias were available in the classrooms. There was a relatively new set of maps on a rack above the chalkboard in one room. There was a set of comprehensive social studies maps on a tripod. The Scholastic Magazine and

World News Map on the bulletin board indicated an interest in current events. A map of Indians of Arizona suggested a study of local history and geography.

The combinations of grades in the classrooms encouraged independence in study habits and grouping within the room for purposes of study as well as class work.

Conclusions and Recommendations

Arlington School

The above observations lead one to conclude that most of the teaching in social studies was textbook-centered for both content and sequence. The practice of reading the text either silently or orally and finding the answers to the questions at the end of the sections appeared to be commonly accepted. There was little visible evidence that the pupils had researched the library or other sources for information pertinent to a problem, or that they had used such information as the basis for any original writing, problem solving, or group activity.

The following suggestions are offered as a means of upgrading the social studies instructional program:

1. Develop a teachers' guide which identifies the vertical scope and sequence of the social studies program for the entire elementary school. This could be done by a committee of teachers within the school.

2. Identify problems as an approach to the teaching of social studies and show how problem-solving utilizes the facts given in the texts and references. Examples of problem units are: "How have the new nations in Africa changed the pattern of colonialism?" or "What effect have natural resources had on the development of the Middle East?"

3. Purchase from five to eight copies each of at least five or six additional references in each subject at each grade level and use them to broaden sources of information. (See Bibliography for suggested list.)

4. Bring encyclopedias and other reference materials into the classrooms where they will get more frequent use.

5. Add to the supply of such audio-visual media as maps, globes, charts, and atlases.

6. Involve pupils in the planning by letting them set purposes, search for reading material, and organize and present their findings to the rest of the class.

7. Encourage cooperative projects such as panel discussions, dramatizations of historical events, travelogues, mock elections, opinion polls, and individual projects to vitalize factual information.

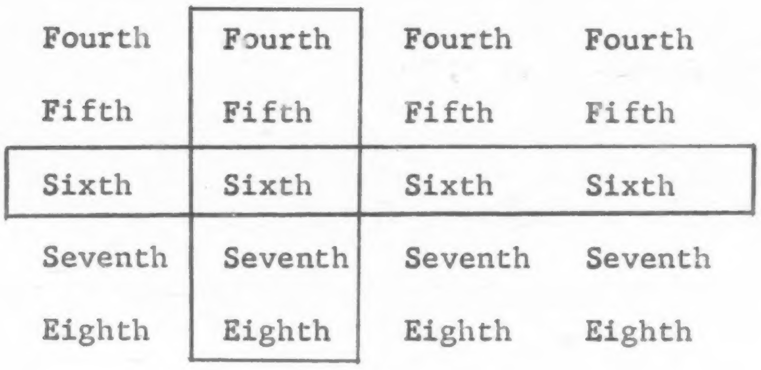
8. Unify the concepts relating history and geography. Place historical facts in geographical settings and identify geographical influences on historical events. Some unified social studies texts help with this type of organization.

Carrying out these suggestions calls for some rearrangement of class procedures as well as of physical facilities. It calls for placing books and materials in the rooms for ready access. It means giving pupils more responsibilities for their own learning. It means small groups working independently. It means variety of activity from day to day. It means more time for planning, researching, organizing, and doing, and less time for reciting.

Buckeye Elementary School

In a school of this size a first needs are unity, organization, and leadership so that continuity may result in the child's learning program. In light of this suggestion three types of recommendations are offered in the areas of curriculum planning, use of materials, and individualization of instructional procedures. In order to carry out the recommendations, more communication is needed between teacher and teacher with opportunities to share ideas, plans and materials, thus creating unity in the total program.

1. Curriculum planning - Set up two types of committees, one based on grade levels and one based on subject matter areas spanning grade levels.



Fourth	Fourth	Fourth	Fourth
Fifth	Fifth	Fifth	Fifth
Sixth	Sixth	Sixth	Sixth
Seventh	Seventh	Seventh	Seventh
Eighth	Eighth	Eighth	Eighth

Figure 2
Committee Organization Plan

Four sixth grade teachers, for example, could work together to organize and classify all the materials available for teaching social studies at this level. They could identify the teaching units and the desirable areas of emphasis. The same applies to each of the other grade levels.

Then four or five teachers, one from each grade level, could take that material and identify the sequences from one level to the next to show continuity in the program and in the use of materials. This plan would insure effective development from one level to the next, provide for more efficient use of available material, and eliminate wasteful overlap in the use of materials, time, and effort.

An individual teacher might find himself a member of two different committees, one with a horizontal approach and one with a vertical approach. This would be good for the individual as well as for the perspective it would give to the work of the committees.

2. Use of materials - Another inter-grade-level committee could make a study of materials available for the teaching of social studies. The first

task would be to identify and classify what is already available in the library and in the various classrooms. The second step would be to study publishers' catalogues to determine what is obtainable and compile a list for planned purchases. This committee could logically "grow" out of the vertical study committee (See #1, above).

Another task for this type of committee would be the development of a teachers' guide for effective use of such teaching materials as bulletin boards, project centers, chalkboards, display space, hall space, maps and globes, and current events publications.

3. Individualization of instruction - A research approach to the teaching of social studies would challenge children to use their study skills and think in terms of problems. Carrying out this plan would call for identifying unit topics and varying the activities to correspond to the abilities of the pupils. While classes vary in make-up, this general plan for grouping and individualization should fit most classes.

a. Divide the group. Select a few of the most capable and independent workers and give them assignments based on library work, research and independent activity so that they will contribute to the class some information which would otherwise not be available.
b. Select a few of the least capable and work with them as a small group guiding and directing the reading of the text or simpler reading material so that they will have some contribution to make to the general discussion later.
c. Give the larger middle group a basic assignment for a study period.

Accompanying this plan for division of the class into working groups would be the division of time to provide a balance of individual and group activity. Use about one fourth to one fifth of the time for introducing a unit or a topic and planning individual responsibilities. Use about half the time for carrying out the study activities involving the collecting and organizing of information. Use about one fourth to one third of the time for discussion, sharing, and summarizing information in terms of problems or topics. This may be done on a daily or a weekly basis. Consider the two plans outlined below:

Daily- Planning and assigning - 10 to 15 minutes
Reading and study activities in groups - 20 to 25 minutes
Discussion and sharing - 10 or 15 minutes

Weekly- Planning and assigning - one day
Reading and study activities - two or three days, or part of the period for each of three or four days
Discussion and sharing - one day at the end of the week, or part of the period for two or three days.

Liberty School

From the observations pointed out above, one can conclude that the program in social studies at Liberty School was textbook centered and developed around class discussions. Inquiry and observation revealed that much of the teaching was done through oral reading and answering of factual questions.

In order to utilize the independence which the children exhibited and to broaden their understandings, the following recommendations are offered:

1. Purchase current encyclopedias for the classrooms.

2. Purchase current reference books in social studies in sets of five to ten for each class reference use. (See Bibliography for suggested list of books.)

3. Make more use of bulletin board and chalkboard space for learning projects, to outline information, develop maps and charts, and exhibit collected materials related to teaching units.

4. Buy current sets of maps for classroom use.

5. Place history and geography in sequence on the daily program, where that is not already the practice, in order to provide a longer period for unit approach and to be able to better relate the two areas to each other.

6. In rooms where shelf and storage space is not available, or is limited in amount, make provision for it.

Palo Verde School

Palo Verde School presented a warm relationship among teachers and pupils and provided a setting where much worthwhile learning can take place. The following recommendations are offered in an attempt to encourage a forward move to a still better program of learning for children.

1. Provide additional enrichment through current reading material related to the social studies. Some of this can be secured through periodicals and daily newspapers. Much more might be added through the acquisition of more recent editions of encyclopedias, up-to-date reference books, and pupils' weekly newspapers or magazines. There are several obtainable including Weekly Reader, Junior Scholastic, and Read.

2. "Weed" the shelves of some of the badly worn and out-of-date books. This would improve appearance, eliminate unused material, and provide space for new materials which could be used to better advantage.

3. Purchase varied social studies materials in small sets from six to ten copies each. These can be used to challenge fast workers, provide simpler material for some slow learners, broaden the learnings, and provide enrichment for the problem-solving approach to social studies. (See Bibliography for suggested list.)

4. Give more emphasis to gathering information, organizing facts, identifying relationships, and drawing conclusions. This could well replace some of the emphasis on finding the answers for the exercises in the workbooks.

5. Have the children use their social studies learnings to engage in such activities as writing letters for information or materials, developing exhibits or displays, dramatizing events in history, comparing one geographical area with another, comparing one historical era with another, and preparing maps or charts to show organization of facts.

6. Relate library reading both in reference material and in fiction to the current center of interest in social studies.

General Recommendations-For All Schools

In as much as the social studies constitute such a broad field of the curriculum, and the task of studying materials, content, and teaching procedures is so extensive, it would seem that two purposes could be accomplished by naming some joint committees representing the four different schools included in the district which sends children to the Buckeye Union High School.

The first purpose accomplished would be a saving of time and energy on the part of professional staff who make studies and share their findings with a larger group.

The second purpose would be a unification of background with more common experiences for the children.

This leads to the following recommendations:

1. Appoint joint committees for study of text books in anticipation of book adoptions.

2. Use these same committees to study reference materials available and make recommendations for local purchases.

3. Name joint committees for curriculum development and delegate to them the compilation of lists of units, recommended materials, and suggested procedures in carrying out the program. Joint district sponsorship of consultant assistance for such committees would help to insure higher quality results.

4. Plan unified in-service training programs with local or outside leadership to study trends and programs in the social studies.

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  Ibid, The Eastern Hemisphere, (Grade 6)
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  McCrocklin, James H. The Making of Today's World, 1962 (Grades 7 and 8)
  Ibid, Building Citizenship, (Grades 7 and 8)

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  Childhood of Famous Americans Series, About 150 titles. Biographies of real characters in American Life.

Ginn and Co., Palo Alto, Calif.:
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  Dawson, Your Country and Mine, (Grade 5)
  Ibid, Your World and Mine, (Grade 6)

  Tiegs, Ernest W. Understanding Latin America (Grade 7)
  Bradley, John H. World Geography, 1964 (Grade 7)

  Breintz, George R. Understanding Our Government, 1961 (Grade 8)

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  Ibid, Exploring the Old World, Unified Social Studies (Grade 6)

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  Ibid, Basic Social Studies, (Grade 5)
  Ibid, Basic Social Studies, (Grade 6)

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    Ibid, Old World Lands, (Grade 6)

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MATHEMATICS

Point of View

What have been the characteristics of the traditional mathematics curriculum at the elementary school level for the past several decades? Primarily, the curriculum has been concerned with the development of the pupil's computational proficiency, a social type of application of simple arithmetic and the solving of a series of stereotyped word problems. The implementation of the traditional curriculum simply involved the child in the mechanical manipulation of numbers with little or no effort made to stress mathematical understanding and no attempt made to emphasize a spirit of inquiry through an inductive approach. All children, those who are slower and those who are brighter, need to gain insight into mathematical structure. Such learning experiences are possible when children come to understand number relationships, discover principles of operation and perceive patterns among numbers. A modern program properly implemented enables the brighter children to expand their mental powers, while at the same time, slower boys and girls are intrinsically motivated by the new content and approaches.

The following points represent some of the characteristics of a more modern approach to the teaching of elementary school mathematics:

1. The modern program in mathematics is designed to make students think at a more abstract level.

2. The content is of such nature that students are led to mathematical discoveries on their own. It should be noted that the mathematical discoveries children make are not new discoveries to man, but are new to children.

3. The modern program in mathematics goes beyond the social aspect of the grocery store.

4. Some of the mathematics included in the new programs has no practical application. In other words, there is some mathematics presented just for the sake of mathematics.

5. The modern program stresses understanding of the number system.

6. Greater unification and integration of mathematical ideas and procedures characterize a more modern program in mathematics. Separate treatment of the various branches of mathematics becomes more difficult (and even inadvisable) in a modern approach to the subject. It suggests that increased emphasis must be given to such basic principles and patterns as those inherent in number systems, and to the properties of operations from which we abstract generalizations. All of these are integrated by such unifying concepts as the notion of a set, the notion of a number system, the notion of a mathematical condition, and the notion of a relation.

7. The modern approach emphasizes more precise definitions, terminology, and notation. For example, there is a difference between "circle" and "circular shape". Do we really find the area of a circle? The answer is "No" when we define a circle as a particular set of points which return to the point of origin without intersecting and the set of points are equidistant from a fixed point called the center. It follows, then, that it is not possible to find the area of a circle if we know that a circle is made

up of a certain set of points and when we know that a geometric point has no dimension.

The type of mathematical reasoning which should be included in an elementary mathematics curriculum consists of four parts: (1) undefined terms, (2) definitions, (3) axioms, and (4) theorems. The definitions must be stated by uniting the undefined terms with simple English; the axioms must be emulated in light of the undefined terms and the definitions; and each theorem, or conculsion, must be obtained logically from the definitions and axioms. This type of approach is referred to as the axiomatic approach, the postulational approach, or the deductive method. In other words, the modern mathematician starts with certain undefined terms which he combines with simple English to state a set of definitions and axioms. From these he draws conclusions by applying the rules of logic. In essence, this process of drawing conclusions from undefined terms, definitions, and axioms is called mathematical reasoning. If we accept the hypothesis of a famous Harvard University psychologist that all knowledge currently known to man (and this is quite a staggering thought) can be taught to all children at all age levels and at all levels of ability, then to have mathematical reasoning characterize the modern program in mathematics is not only desirable but becomes imperative. The lone variable to the above-stated hypothesis is the adjustment of the complexity of the knowledge to the grade level and ability of the child.

There are four important and profound questions that every teacher should ask relative to his teaching. These questions are applicable to the teaching of elementary mathematics and are in keeping with the spirit of mathematical reasoning which should be associated with a substantial program in elementary school mathematics. It is most important that each teacher ask himself these four questions, ponder over the derived answers, and then act accordingly. The four questions are:

1. What percentage of the time is spent in the classroom teaching unimportant content or fostering learning activities having questionable value (i.e. trivia)?

2. What percentage of the time is spent in the classroom teaching for critical thinking?

3. What percentage of the time is spent in the classroom teaching for more effective mathematical communication?

4. What percentage of the time is spent in trying to stimulate interest in mathematics beyond the termination of the course?

For each of these four questions, ask an additional two:

1. What do you think it ought to be?

2. What do you think it actually is?

How does a modern program in arithmetic differ from a more traditional one? First, a modern program utilizes a more precise vocabulary. Precision in language helps boys and girls think in arithmetic. For example, when a child says (and thinks) "five and six 'is' eleven," he understands that "5 and 6" is really another name for "11." In this case, use of the singular verb helps the child to understand this important concept, which becomes quite important as he progresses in mathematics. Precise use of mathematical language enables boys and girls to distinguish between number and numeral. Children learn and understand that number is a quantitative idea. A numeral can be seen and written, while a number cannot be seen or written.

In a modern approach to the teaching of elementary school mathematics, the pupil learns to distinguish between cardinal and ordinal number. He comes to understand that cardinal interpretation of number tells us "how many" and that ordinal interpretation of number shows "position." The child also learns that any given number may be expressed in many different ways. For example, he learns that 7 + 2, 3 x 3, 15 - 6, and 5 + 4 are all names for the number 9. In other words, the child is led to discover that computation is actually a process of replacing one number expression with an equivalent one in more convenient form. To help the student visualize this idea, the wise teacher will illustrate this concept from the point of view of the number line as shown in figure below:

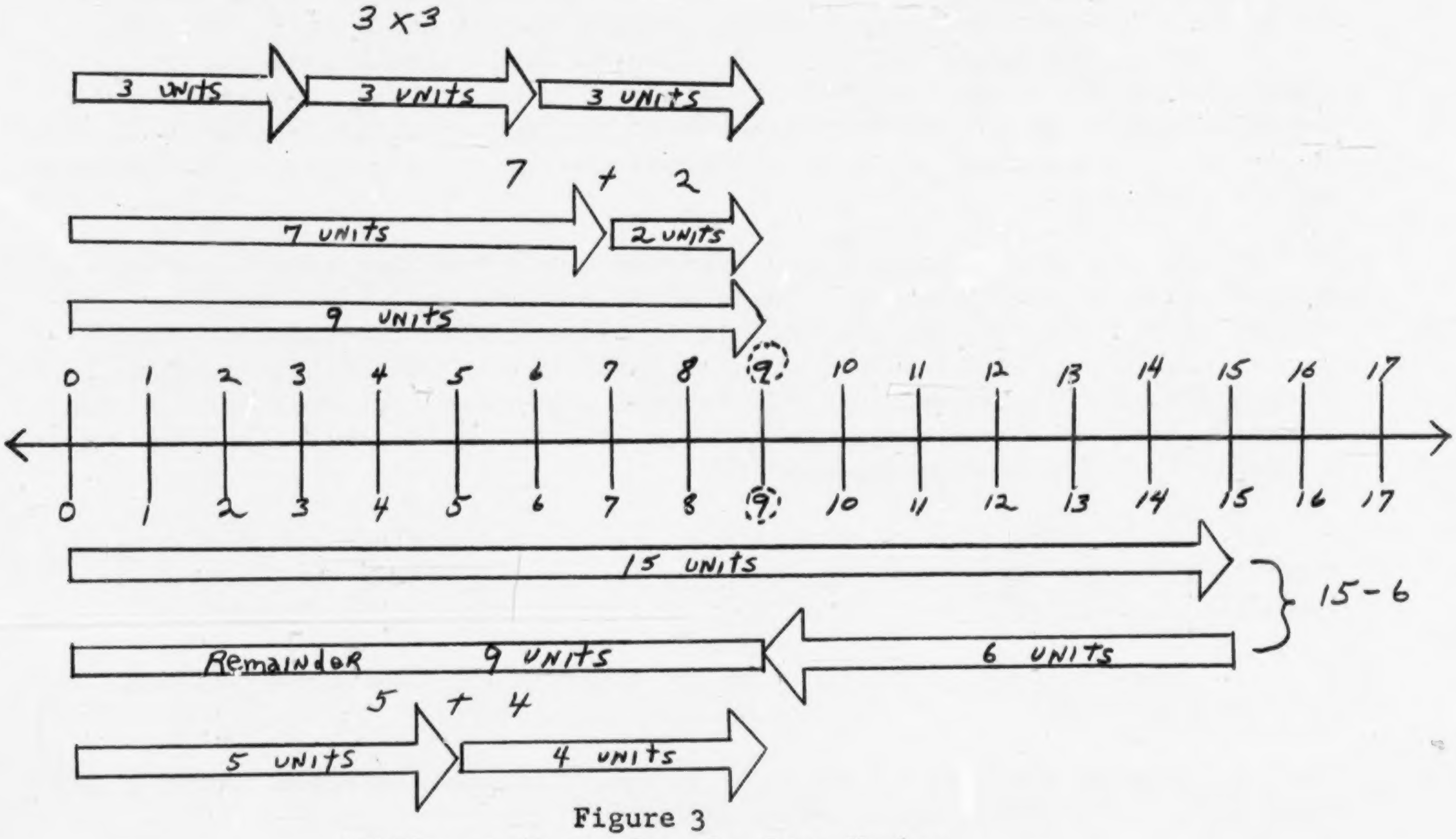


Figure 3
Different Names for the Same Number

In a modern approach concerned with teaching the pupils certain arithmetical understandings, the teacher stresses various aspects of our decimal system, including place value. It is difficult for children to perceive numbers or to add, subtract, multiply, or divide with understanding if they have not understood the place-value idea. For example, when learning to subtract 50 from 157, they must conceive of the 157 as 15 tens and 7 ones in order to subtract 5 tens from 15 tens: 157 - 50.

As the boys and girls continue in a modern arithmetic program, they should experience systems of numeration with bases other than ten as a means of reinforcing their discovery and understanding of place value. If, for example, a base five system is explored and understood by the children, they will be in a much better position to understand and perceive our base ten system of numeration. As an illustration of what is meant, an example of a base five system is presented below.

TABLE I

GROUPING BY FIVES

		Fives	Ones	Base Five Numeral
a	....	2	2	22_{five}
b	....	3	0	30_{five}
c	....	1	2	12_{five}
d	....	3	4	34_{five}
e	....	4	4	44_{five}
f	....	4	0	40_{five}

GROUPING BY FIVES

		Twenty-fives	Fives	Ones	Base-ten numeral	Base-five numeral
a	::::::::::	1	1	2	32	112_{five}
b	:::::::::: :::::::::: .	1	3	1	41	131_{five}
c	....	1	2	0	35	120_{five}
d	....	2	4	0	70	240_{five}
e	.... ::........	4	4	2	122	442_{five}

In a quinary (five) system the first place to the left of our reference point is the units position. The child then discovers that the next place to the left represents the number of fives ($5^1 = 5$), the next place the number of five-fives, or twenty-fives ($5^2 = 25$), the next place the number of five (five-fives), or the one hundred twenty-fives ($5^3 = 125$). The child is led to discover that we use or symbolize these place values by the powers of five using the decimal language symbols - 5^0, 5^1, 5^2, 5^3, 5^4, and so forth.

(For additional insight relative to a fives system of numeration see Supplement B.)

A modern curriculum in arithmetic introduces the concept of sets. The children will soon discover that the language of sets is a most significant tool for expressing abstract ideas. Children at the primary level, for example, will discover that if the members of the two sets are in one-to-one correspondence, they have the same cardinal number. The concept of subsets will help the boys and girls understand the relationship of subtraction to addition.

Geometric concepts are introduced to the children at the primary level. More geometric concepts are discovered as the boys and girls progress through the middle and upper grades. The child is encouraged to discover many geometric properties for himself. For example, as he measures line segments drawn from points on a circle to a fixed point called the center, he will discover that each line segment is of equal length.

In addition to becoming proficient in number facts, children learn to express the basic operations (i.e., addition, subtraction, multiplication, and division) in the form of number sentences. This helps the children understand the relationships among numbers. Number sentences are helpful in exploring relationships between operations. An example of this is the addends-sum relationship. An exploration of the addends-sum relationship will lead the pupils to discover that for each addition fact there is a related addition fact and two related subtraction facts. In the number line illustration given below (Figure 4), the boys and girls will discover that all four of the mathematical sentences express the same relationship among the addends 3 and 5 and the sum 8.

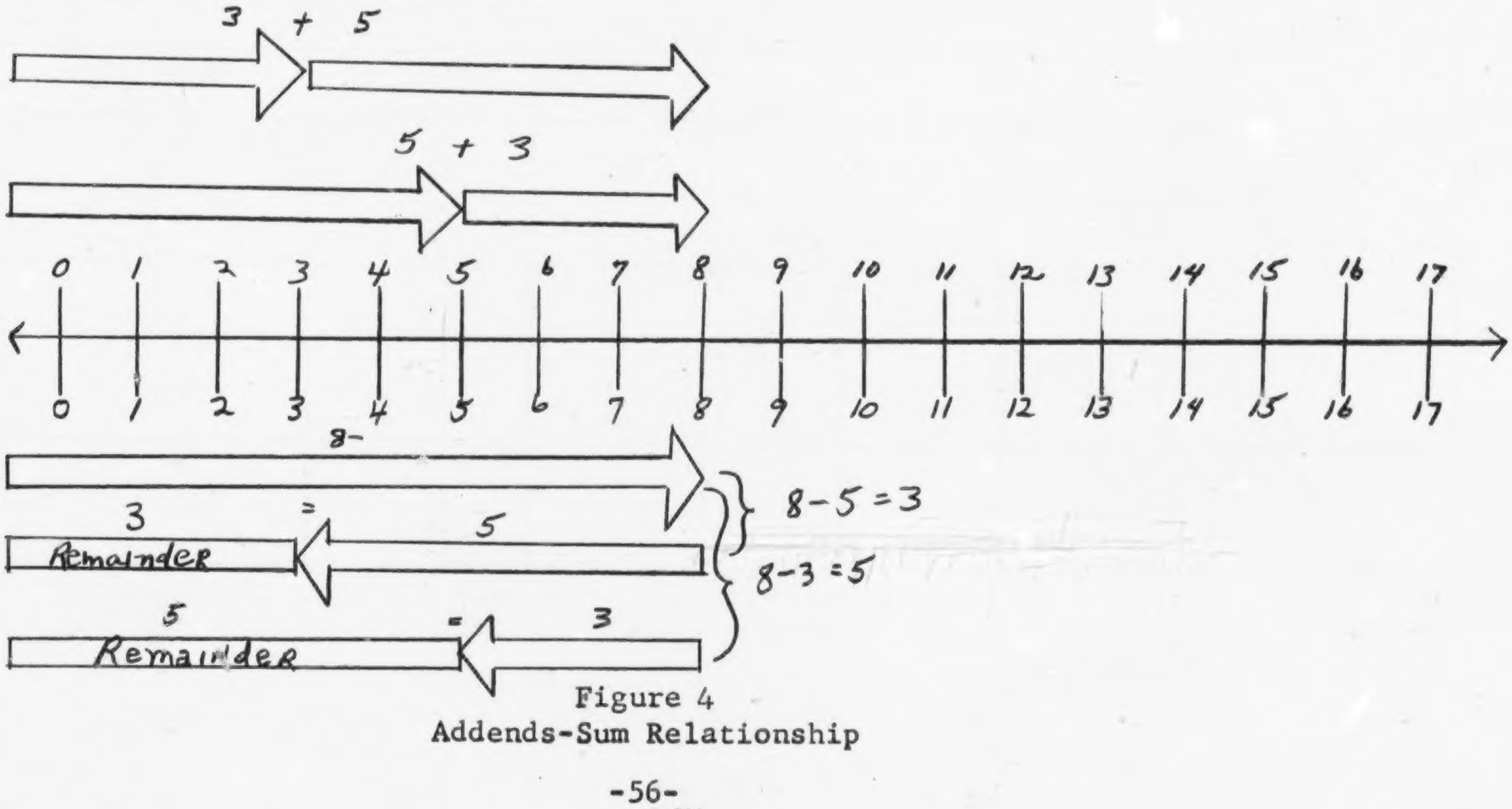


Figure 4
Addends-Sum Relationship

In a modern mathematics program, the children will explore the commutative and associative properties of addition. They will understand subtraction from the point of view of counting and will discover the associative property of subtraction. The boys and girls will explore the meaning of subtraction in relation to the take-away idea, will understand subtraction from the point of view of comparison, and will discover the meaning of additive subtraction. When considering the meaning of multiplication, the children will come to understand the commutative, associative, and distributive properties of multiplication and will discover that multiplication distributes over both addition and subtraction. When concerned with the operation of division, the children will perceive the distributive property of division and will discover the factors-product relationship. As the children increase their number knowledge, they will discover that the set of names for a number is infinite and that the set of whole numbers is infinite. In a modern program, the children will be introduced to integers and will discover the meaning of both negative and positive integers. The boys and girls will also understand the concept of fractional number in a modern mathematics program. In terms of fractional number, the children will discover why one inverts in the division of fractions and will understand the meaning associated with the product when two fractions are multiplied.

(For further clarification relative to the understanding of fractions see Supplement C.)

In a modern arithmetic program, more stress is placed on principles for two reasons: (1) to give the children the necessary insights to construct new facts and concepts from what they already know and (2) to give the children some understanding and appreciation of the basic structure of mathematics.

Only a few aspects of a modern curriculum in arithmetic have been discussed. It is hoped that the rationale presented will help elementary teachers of mathematics understand that the new approach is concerned with how children learn and that major attention is given to mathematical understanding, a spirit of discovery, and an involvement of the children in a series of critical thinking experiences.

Observations and Commendations

The general observations and commendations presented in the paragraphs to follow will be specifically associated with the elementary schools visited.

Arlington School

It seemed quite evident that the rapport which existed among pupils and teachers was good. The dedication to boys and girls exhibited by the faculty was reflected in excellent student behavior. In general, the classrooms were attractive and quite pleasant. The classroom climate fostered by the faculty helped greatly to establish an environment conducive to learning. It was apparent that the boys and girls in Arlington Elementary School liked their school and teachers. In light of the pleasant atmosphere which characterized the entire school campus, the faculty and administration should be highly commended.

It was noted that the state-adopted textbook in arithmetic (Winston series) was closely followed by the teachers from grades one through eight. It appeared that the arithmetic textbook was followed in a page-by-page sequence even if the organizational pattern did not always appear to be appropriate for the boys and girls and the particular learning situation.

There seemed to be a definite lack of supplementary materials in the area of arithmetic. Complete dependence on the textbook appeared to permeate all of the grades. No evidence of visual aids in the area of arithmetic was noticed at any of the grade levels.

It was determined that no course of study or course outline developed by the faculty representing a sequential program in arithmetic design to meet the needs of the boys and girls in attendance was in existence. There seemed to be no articulation among the teachers at any given grade level (from one through six) relative to the arithmetic program, nor was effort made to articulate between grades (from one through six) It was also established that, in the area of arithmetic, no concrete and profitable relationship existed between Arlington School and the other elementary school districts sending their students to Buckeye Union High School.

The faculty expressed interest in investigating the new mathematics programs and many indicated they were planning to enroll in a graduate extension course in this area to be offered at Buckeye during the second semester of the 1964-65 school year. The school climate for up-grading of knowledge in mathematics and the development of programs in mathematics to better meet the educational needs of all the boys and girls attending Arlington Elementary School appeared to be excellent. It was surmized that many of the faculty members were not satisfied with the present arithmetic textbooks and were looking forward to the development of an arithmetic program which did more than stress computational skills and the mechanical solving of stereotyped word problems.

The faculty commended the administration relative to furnishing classrooms with materials and instructional supplies. They felt that a good potential existed for formulation of an instructional materials center which would include a variety of mathematics materials for all students at all grade levels plus the addition of new and pertinent supplementary materials in mathematics to be located in each individual classroom.

The unique grouping of the sixth, seventh and eighth grade students into four levels of ability had considerable merit and the potential of this program should continue to be explored. A grouping of this nature had made it necessary for the sixth, seventh and eighth grade teachers to work together in developing a better mathematics program for the children at these three grade levels. The upper grade teachers felt that the insights gained from this grouping of the sixth, seventh and eighth grade students into four ability and achievement levels could and should lend itself to a more formal organization of the total faculty for in-service study and strengthing of the total mathematics program. The involved staff personnel should be highly commended for their innovation and subsequent implementation of this unique grouping.

It was discovered that one of the first grade teachers had previously taught "modern mathematics" at other elementary schools and was most enthusiastic about the response of the children to a modern program.

From all that was observed at the several grade levels, it appeared that the potential for faculty study and analysis of the present mathematics program, up-grading of faculty knowledge in the newer mathematics, the development of newer and better sequential programs in mathematics, and eventual implementation of an improved mathematics program, was excellent.

Buckeye Elementary District

At Buckeye Elementary School it was observed that the educational program was well organized and that the daily schedule and operations functioned in an orderly manner. The faculty and administration were highly motivated to expend maximum effort to conduct an educational program designed to meet the needs of all the pupils. Excellent rapport appeared to exist between the faculty and children which was reflected in excellent behavior on the part of the boys and girls. The bulletin board displays were appropriate and attractive. In each of the classrooms visited, the general tone and environment appeared to be most conducive to learning.

It was noted that the State-adopted text (Winston series) was followed closely with little to no attempt made to make adjustments to the varying needs of the pupils. Each of the classrooms visited appeared to lack a variety of supplementary materials for use in the mathematics program. The school did not have an instructional materials center containing a variety of pertinent mathematical resources. In addition, it was noted that in the area of mathematics, no professional library for teachers existed.

It appeared that little attempt was made to articulate in the area of mathematics among the eight grade levels and that in most cases there was little articulation among the teachers relative to the mathematics curriculum at any of the grade levels. At the time of visitation, no committees had been created to study, analyze or strengthen the existing mathematics program. No courses of study in mathematics developed by the faculty at any grade level were available. Articulation of the mathematics curriculum with Buckeye Union High School and with the other elementary schools sending their students to Buckeye Union High School was not evidenced. It was felt by many of the faculty members, that the need existed to create committees of teachers assigned the responsibility of analyzing, modifying and improving the current mathematics program and to work on the development of a sequential program in mathematics from grades one through eight that would better meet the needs of all the children attending Buckeye Elementary School.

In each situation observed at the fifth grade level, the teachers were most willing to give individual help and attention when and where required.

Liberty School

The boys and girls who attend Liberty Elementary School were housed in a well maintained school plant. In general, the rooms were attractive and the bulletin boards appropriately utilized. It appeared that the classroom climate and environment established by the attractiveness of the rooms were conducive to pupil learning. The faculty and administration seemed to be dedicated in meeting the needs of the pupils who attend Liberty Elementary School. The behavior of the boys and girls was excellent. The faculty and administration are commended for the fine attitudes and behavior exhibited by the children. There was a well-stocked book room containing some samples of new books and materials received from publishers. These books were used by teachers as supplementary materials in many different ways. It was felt that the potential existed for the development of a good instructional materials center.

Except at one grade level, there was no significant effort made to articulate the arithmetic program between the two or more teachers who taught the same grade. There appeared to be no articulation among the teachers from grades one through eight for the development of a sequential program in mathematics. There was no formal organization of the faculty to study and analyze the present mathematics program for the purpose of strengthening and improving the curriculum in mathematics. The faculty had not been organized to develop courses of study or course outlines that would identify the existing curriculum in mathematics. No in-service programs for the faculty had been established where concerted study could be made relative to the upgrading of staff knowledge in the subject of mathematics. Articulation of the mathematics curriculum with the other elementary schools sending their pupils to Buckeye Union High School and specifically with Buckeye Union High School did not characterize the situation.

Palo Verde School

The compassion for boys and girls that was exhibited by the teachers and administration of Palo Verde Elementary School seemed to permeate the entire school campus. The dedication of the total faculty to boys and girls appeared to be greater than that normally expected or encountered. This compassion and dedication was reflected in the attitudes expressed by the children. It was apparent that the boys and girls were happy and truly liked "their" school. The behavior of the children was excellent. The faculty and administration should be commended for the wholesome effect the total curricular experiences have had on the children attending Palo Verde Elementary School. Each of the classrooms visited was attractive and the general classroom environment appeared to be conducive to learning.

It was noted that the faculty was eager to gain insights relative to the "modern mathematics" programs. Many faculty members expressed interest in taking the graduate extension course in "modern mathematics" to be offered at Buckeye Elementary School starting the second semester of the 1964-65 school year.

It was determined that no curriculum committees had been organized to study and analyze the current mathematics curriculum. It was found that the faculty had not been organized to develop a curriculum in mathematics sequential in nature that would strengthen this area of the curriculum for the children. It appeared that the State-adopted textbook was closely followed and that this book represented the primary source of mathematical knowledge for the children. It was also noted that no course outlines had been developed in mathematics by the faculty. Consequently, articulation among the teachers at the different grade levels in the area of mathematics did not characterize this particular situation. Furthermore, the faculty did not articulate the mathematics curriculum with the mathematics program promulgated at Buckeye High School nor with the established curriculum of the other elementary schools sending their students to Buckeye High School. It appeared that the mechanics of computation, with stress on rapid and accurate computation, characterized a major portion of the mathematics curriculum. Stress was placed on correctness of answer more than on how the student arrived at the answer. No evidence was found to indicate that effort was made to have the children discover the various properties of our number system and to understand (in keeping with grade level and ability) the nature of our number system. It was determined, however, that interest of the faculty to investigate new mathematics programs was high and that the willingness of the faculty to develop a mathematics curriculum that would strengthen the children's experiences in this area was most evident.

Conclusions and Recommendations

The recommendations to follow will be specific to each elementary school visited. The recommendations are based on observations, pertinent discussions with individual faculty members and meetings with faculty groups. No effort was made in this report to list the recommendations in any priority order. It is hoped that each recommendation listed will be given equal and serious consideration.

Arlington School

It is recommended that a grouping of children by ability and achievement level similar to the grouping characteristic of the sixth, seventh and eighth grades in mathematics be explored by the middle grade and primary teachers. This type of organizational structure presents a potential for a program that could better meet the needs of all students.

(See "General Recommendations-For All Schools" at end of this section.)

Buckeye Elementary District

It is recommended that the seventh and eighth grade mathematics teacher be appointed as chairman of a curriculum committee created to study and analyze the current program in mathematics. This particular faculty member could also chair a committee to articulate and construct a sequential program in mathematics from grades one through eight. It is felt that this same person should help to articulate the mathematics program at Buckeye Elementary District with the other concerned elementary schools and with Buckeye Union High School. Because of this person's enthusiasm and mathematical knowledge, it is suggested that he be asked to help implement the phasing into a more modern mathematics program. (See "General Recommendations-For All Schools" at end of this section.)

Liberty School

It is recommended that the second and third grade teachers be assigned key responsibilities in an in-service training program designed to study and strengthen the current mathematics curriculum. It is felt that a high degree of interest in exploring the possibilities of the new mathematics programs exists among the teachers at these two grade levels. It follows, therefore, that these faculty members would be of immense value in stimulating total faculty interest as exploration in this curriculum area is initiated.

It is recommended that all available materials related to the new mathematics be made available to each faculty member concerned with the teaching of mathematics. Concentrated study of these materials by the faculty plus their participation in a mathematics course designed for the staff's needs would place them in a favorable position to implement the essentials of the new mathematics curriculum in a manner that will best meet the needs of the children attending Liberty Elementary School.

(See "General Recommendations-For All Schools" at end of this section.)

Palo Verde School

It is suggested that the second and fourth-fifth grade teachers be assigned key responsibilities in an in-service training program designed to study and strengthen the current mathematics curriculum. It was observed that a high degree of interest in exploring the possibilities of the new mathematics programs existed between the two teachers at these identified grade levels. It follows, therefore, that these faculty members could be valuable assets in stimulating total faculty interest should exploration in this curriculum area be initiated by the administration.

It is recommended that all available materials related to the new mathematics be made available to each faculty member concerned with the teaching of mathematics. Concentrated study of these materials by the faculty plus their participation in a mathematics course designed for the staff's needs would place them in a favorable position to implement the essentials of the new mathematics curriculum in a manner that will best meet the needs of the children attending Palo Verde Elementary School.

(See "General Recommendations-For All Schools" at end of this section.)

General Recommendations-For All Schools

The following recommendations are general in nature and are applicable to each of the concerned elementary schools.

1. Once each of the respective elementary schools has developed courses of study in mathematics representing the present curriculum in this subject field area, it is recommended that the four school districts work together (and in conjunction with the mathematics department of Buckeye Union High School) as a new look is taken at the mathematics curriculum and as effort is initiated for the development of a new and strengthened mathematics curriculum.

2. It is urged that a written set of objectives be created for the mathematics curriculum. Furthermore, a set of objectives should be established for each grade level. It is imperative that the developed objectives be consistent and compatible with the school's general educational objectives. A concerted effort on the part of the faculty and administration should be made toward the development of a sequential program from grades one through eight. The curriculum could then become the means for achieving the established objectives.

3. As a means of determining the nature of the current curriculum in mathematics, it is recommended that courses of study be developed in each school district, at each grade level. Only when a faculty studies that which represents the existing program, can modification and improvement of the curriculum in mathematics be realized. The development and construction

of courses of study in relation to the current curriculum provides teachers with an excellent point of departure for curriculum improvement and modification. An appraisal of what represents reality is essential before significant changes can be implemented. Any faculty should know "what is" before effort is made to determine "what should be." The development of a course of study should result in a sequential program in mathematics that is psychologically sound. Furthermore, it is suggested that the faculty be organized in a series of study groups so that the construction of courses of study can be realized.

4. To facilitate the development of a sequential program in mathematics, it is recommended that a mathematics inter-district curriculum committee be created. This committee should be composed of members representing each grade level in each school and a person from the mathematics department of Buckeye Union High School. This could best be accomplished during the summer months, under the direction of a qualified mathematics consultant. Upon completion of this work, the courses of study should be published and copies furnished to each staff member. This would become the basis for significant future improvement of the mathematics curriculum.

5. As the four elementary schools work together as a team in the development of a more modern mathematics curriculum, it is suggested that consultant help be secured and jointly sponsored.

6. As a means of up-grading teaching in light of the new mathematics program, it is suggested that faculty members be encouraged to take a graduate course in "modern mathematics". In addition, it is recommended that further consultant aid, as needed, be obtained from the local university to complete the up-grading of the faculty in "modern mathematics."

7. The selection of new arithmetic textbooks should be made only after revised courses of study have been published, all available materials have been gathered for teacher study and analysis, and faculty members have participated in a recommended mathematics course. It is essential, at this point, that the selection of new arithmetic textbooks should be made only after teachers are ready to move into a new and improved mathematics curriculum. It is important that each teacher feel secure and be possessed of an adventurous spirit characterized by enthusiasm before a new improved curriculum in mathematics is implemented. It is suggested that much study on the part of the teachers plus sufficient time to plan, (perhaps as much as two years), be realized before the transition to a new or modified curriculum can be profitably accomplished.

8. It is suggested that a planned program be developed for the acquisition of suitable supplementary materials in this particular curriculum area at each of the grade levels. These supplementary materials in mathematics should be in each classroom for immediate use by the pupil and the teacher. The time required to reach this goal will be governed by funds appropriated for this purpose. It is recommended that sufficient funds be provided to meet this objective.

SUPPLEMENT B

A FIVES SYSTEM OF NUMERATION

Tens - System	Fives - System
1	1
2	2
3	3
4	4
5	10 (1 five and 0 ones)
6	11 (1 five and 1 one)
7	12 (1 five and 2 ones)
8	13 (1 five and 3 ones)
9	14 (1 five and 4 ones)
10	20 (2 fives and 0 ones)
11	21 (2 fives and 1 one)
12	22 (2 fives and 2 ones)
13	23 (2 fives and 3 ones)
14	24 (2 fives and 4 ones)
15	30 (3 fives and 0 ones)

CHANGING BASE - FIVE NUMERALS TO EQUIVALENT BASE - TEN NUMERALS		
31_{five}	=	(3 x 5) + (1 x 1) = 16
40_{five}	=	(4 x 5) + (0 x 1) = 20
112_{five}	=	(1 x 25) + (1 x 5) + (2 x 1) = 32
312_{five}	=	(3 x 25) + (1 x 5) + (2 x 1) = 82
404_{five}	=	(4 x 25) + (0 x 5) + (4 x 1) = 104

BASIC ADDITION FACTS - BASE-TEN TABLE

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

BASIC ADDITION FACTS - BASE-FIVE TABLE

+	0_{five}	1_{five}	2_{five}	3_{five}	4_{five}
0_{five}	0_{five}	1_{five}	2_{five}	3_{five}	4_{five}
1_{five}	1_{five}	2_{five}	3_{five}	4_{five}	10_{five}
2_{five}	2_{five}	3_{five}	4_{five}	10_{five}	11_{five}
3_{five}	3_{five}	4_{five}	10_{five}	11_{five}	12_{five}
4_{five}	4_{five}	10_{five}	11_{five}	12_{five}	13_{five}

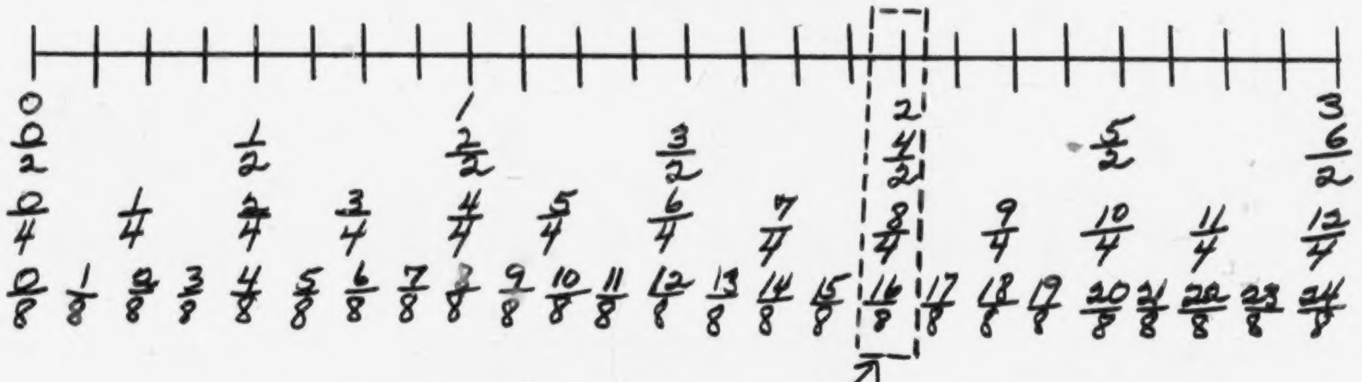
CHANGING BASE-TEN NUMERALS TO EQUIVALENT BASE-FIVE NUMERALS		
8	=	1 five + 3 ones = 13_{five}
11	=	2 fives + 1 one = 21_{five}
13	=	2 fives + 3 ones = 23_{five}
18	=	3 fives + 3 ones = 33_{five}
20	=	4 fives + 0 ones = 40_{five}
22	=	4 fives + 2 ones = 42_{five}
43	=	1 twenty-five + 3 fives + 3 ones = 133_{five}
62	=	2 twenty-fives + 2 fives + 2 ones = 222_{five}

BASE-FIVE SYSTEM - ADDITION EXAMPLES	
1. $7 + 6 = 13$ ←	12_{five} (one-two, base five) $+\ 11_{\text{five}}$ (one-one, base five) 23_{five} ↓ 2 fives + 3 ones = 13_{ten} $(2 \times 5) + (3 \times 1)$
2. $11 + 13 = 24$ ←	21_{five} (two-one, base five) $+\ 23_{\text{five}}$ (two-three, base five) 44_{five} (four-four, base five) ↓ 4 fives + 4 ones = 24_{ten} $(4 \times 5) + (4 \times 1)$

SUPPLEMENT C

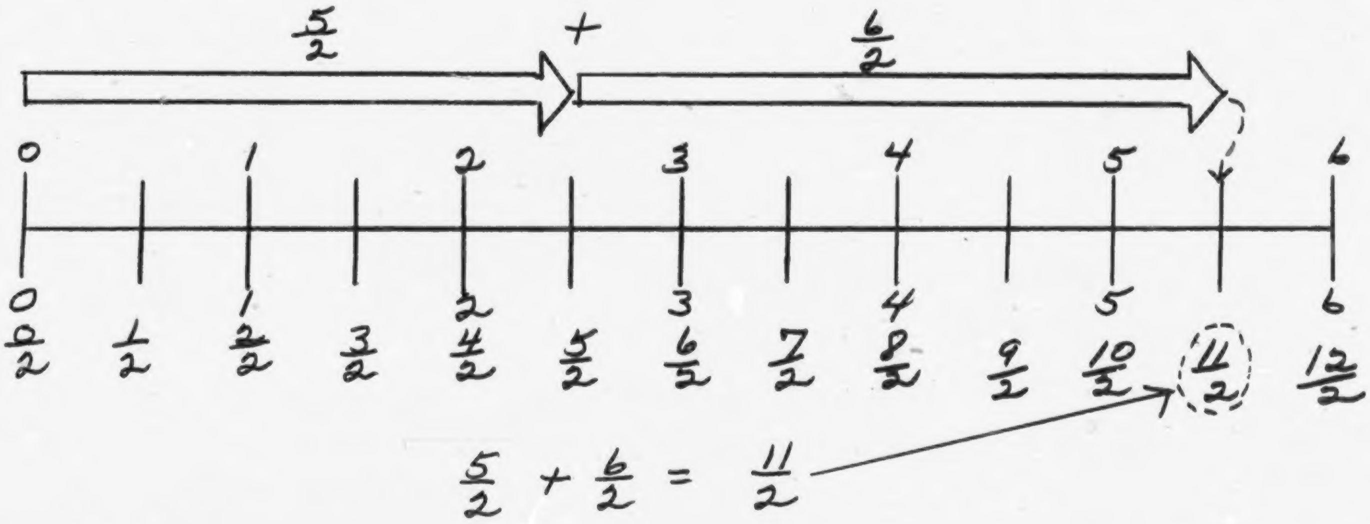
THE CONCEPT OF FRACTIONAL NUMBERS

Fractional Parts Chart


0 1 2 3
0/2 1/2 2/2 3/2 4/2 5/2 6/2
0/4 1/4 2/4 3/4 4/4 5/4 6/4 7/4 8/4 9/4 10/4 11/4 12/4
0/8 1/8 2/8 3/8 4/8 5/8 6/8 7/8 8/8 9/8 10/8 11/8 12/8 13/8 14/8 15/8 16/8 17/8 18/8 19/8 20/8 21/8 22/8 23/8 24/8

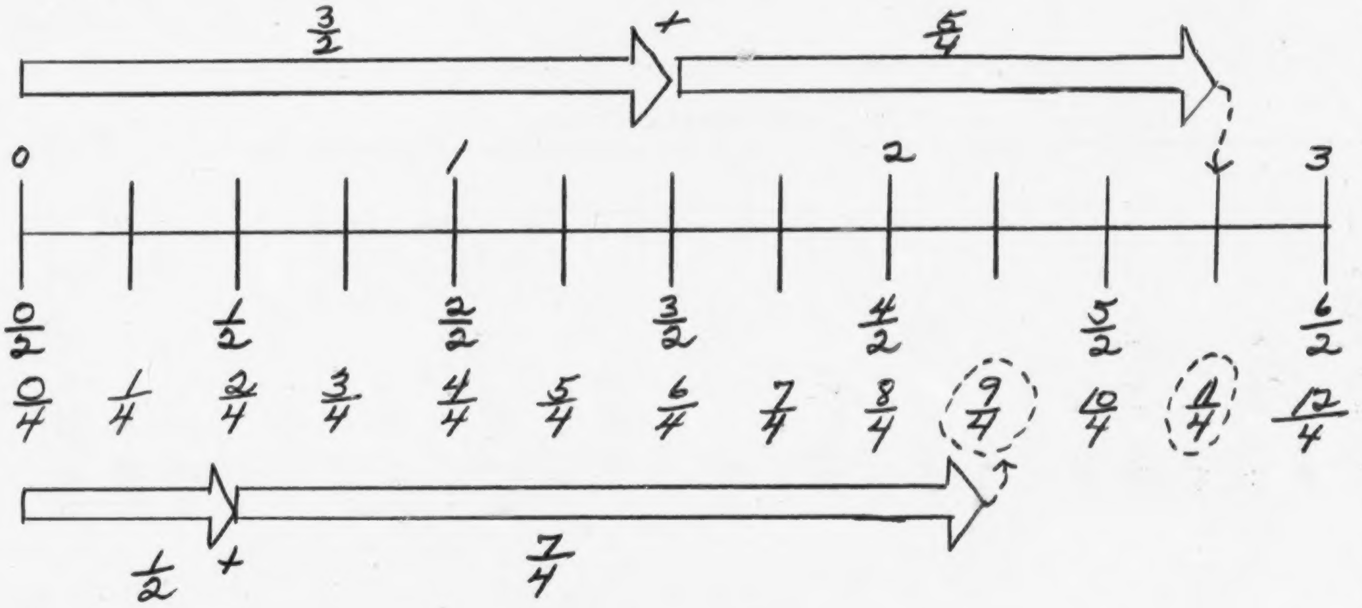
Note: Different names for the same number

Addition of Fractions via the Number Line


5/2
+
6/2
0 1 2 3 4 5 6
0 1 2 3 4 5 6
0/2 1/2 2/2 3/2 4/2 5/2 6/2 7/2 8/2 9/2 10/2 11/2 12/2
5/2 + 6/2 = 11/2

Adding two Fractions not Expressed in the Same Scale

$\frac{3}{2} + \frac{5}{4} = \frac{11}{4}$

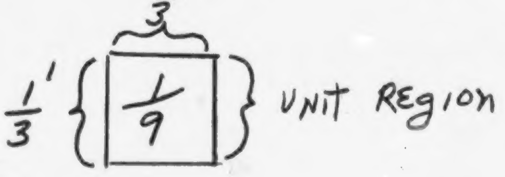

3/2
+
5/4
0
1
2
3
0/2
1/2
2/2
3/2
4/2
5/2
6/2
0/4
1/4
2/4
3/4
4/4
5/4
6/4
7/4
8/4
9/4
10/4
11/4
12/4
1/2
+
7/4

$\frac{1}{2} + \frac{7}{4} = \frac{9}{4}$

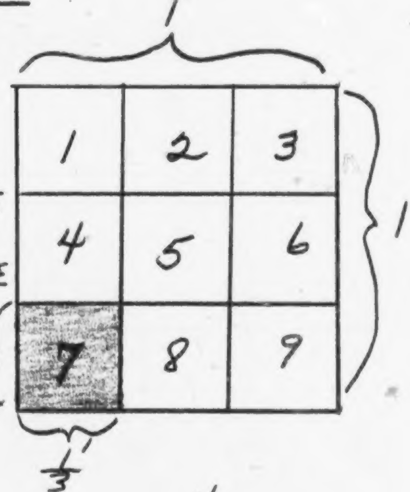
Multiplication of Fractions Through Areas of Rectangular Region

Interpretation of the Product

$\frac{1}{3}' \times \frac{1}{3}' = \frac{1}{9}$ of the foot square

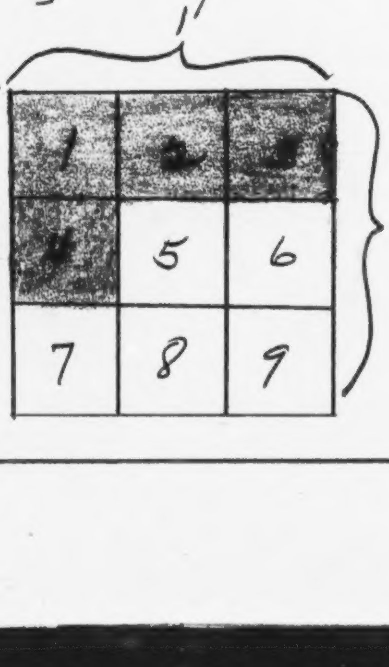

1/3'
1/3'
1/9
UNIT REGION

$\frac{1}{9}$ of the foot square


1'
1
2
3
4
5
6
7
8
9
1'
1/3'
1/3'

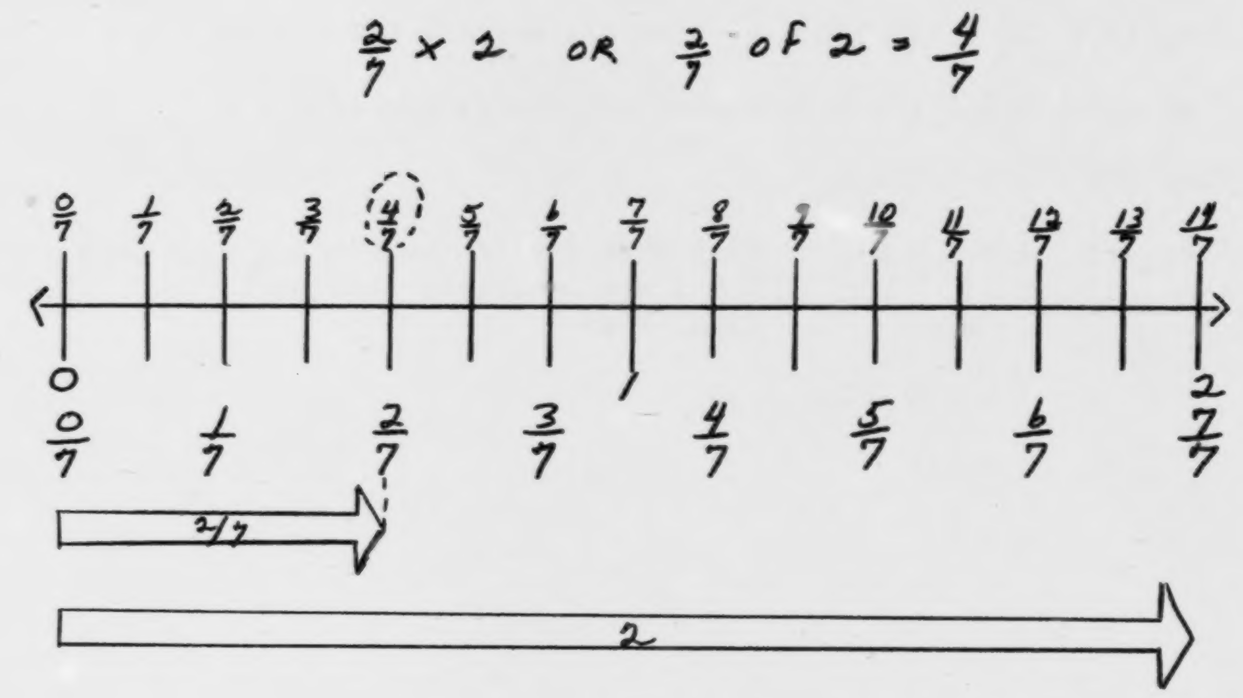
It takes 9 unit regions whose sides measure $\frac{1}{3}' \times \frac{1}{3}'$ to cover the area which has adjacent sides of 1' × 1'.

$\frac{4}{9}$ of the foot square


1'
1
2
3
4
5
6
7
8
9
1'

$\frac{1}{3}' \times \frac{4}{3}' = \frac{4}{9}$ of the Foot square

Multiplication of Fractions via the Number Line


$\frac{2}{7} \times 2$ OR $\frac{2}{7}$ of $2 = \frac{4}{7}$
0/7 1/7 2/7 3/7 4/7 5/7 6/7 7/7 8/7 9/7 10/7 11/7 12/7 13/7 14/7
0 1 2
0/7 1/7 2/7 3/7 4/7 5/7 6/7 7/7
2/7
2

Division of Fractions - Why Does One Invert?

If you know that the area of a rectangular flower bed is 10 sq. ft. and the length of one side is 2 ft., can you decide what the length of an adjacent is? (5 ft.)

What operation is used to solve this problem? (Division)

We know that the measure of one side times the measure of an adjacent side equals the measure of the region.

This problem is solved as follows:

10 = 2 x n (This represents a process of division) - (10 ÷ 2 = n, means that 10 = 2 x n).

From the previous example, we know that a whole number can be submitted for n to obtain a correct statement. The operation used for obtaining this number is called division. Now let us extend the operation of division to fractional numbers.

We agree that 2/7 ÷ 4/9 = n means that 2/7 = 4/9 x n or that 5/8 ÷ 3/4 = n means that 5/8 = 3/4 x n.

In essence, we have invented an operation of DIVISION for all fractional numbers. We shall see if a fractional number can always be substituted for n to give a correct statement. For example -

$$\frac{}{}1/4 \div 1/2 = n \; (1/4 \times \overset{\swarrow\text{-invert}}{2/1} = 2/4 \text{ or } 1/2)$$

Step (a) 1/4 ÷ 1/2 = n, means that 1/4 = 1/2 x n

Step (b)* If 1/4 = 1/2 x n, then 4/1 x 1/4 = 4/1 x (1/2 x n)

Step (c) 4/1 x 1/4 = 1, therefore, 1 = (4/1 x 1/2) x n

Step (d) 1 = 4/2 x n

Step (e) 1 = 2 x n What fraction in the blank n will make 1 = 2 x n a correct statement? (Ans. 1/2)

1 = 2 x 1/2

1 = 2/2

1 = 1

---

*You can see that we multiply both sides by 4 which is the reciprocal of 1/4. We do this to obtain one on the left side of the equation. We know that we can obtain one because the product of reciprocals is always one.

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SCIENCE

Point of View

Science today. The multiplicity of changes that have occurred in science during the past 10, 15 or 20 years is dramatically illustrated by the increased number of different topics to be found in science textbooks and current publications in the field today. No longer is it sufficient to treat science as a few topics in health or to mention it incidentally with social studies. To be regarded as scientifically literate today our elementary school teachers and pupils need knowledge and understanding of the latest techniques employed in: (1) collecting and dispersing weather information; (2) conducting plant and animal growth studies; (3) discovery and recovery of mineral resources; (4) modern communications; (5) modern transportation and space travel; (6) celestial orientation; (7) recovery and use of new energy resources from atoms; (8) developing new atomic and molecular concepts of matter, to mention but a few of the newer topics that have emerged in science.

Concurrent with this rapid expansion in science content has developed a marked growth of interest in and importance for science in the elementary schools. Today science has won and rightfully deserves a distinct and prominent place in the elementary school curriculum.

Science and scientific method. Scientific knowledge differs from other kinds of knowledge in two important respects: First, it is dependable, for it is based upon facts and logical conclusions. Second, it is discovered by an orderly and systematic method known as the Scientific Method. Elementary school science programs can and should help young people to become aware of this difference in knowledge, and to gain not only a knowledge of the scientific method but to acquire some facility in its use. The scientific method has quite properly been referred to as one of problem solving. To teach science as problem solving children must be involved in the process. They must be encouraged to question, to reason, and to think for themselves. As they do, science will assume real and lasting meaning. Teachers can give children science ideas which they may be expected to understand, although each child comes to understand an idea in his own way. The teacher's job is to set the stage for learning to take place and to direct the process.

Current studies. Several studies in elementary science are currently in progress in various schools across the nation from Florida to California. One of these studies is concerned with ability and interest grouping of pupils in the science program, usually within the classroom. Another variation in these studies is the non-graded program which provides for pupils to progress on a non-graded basis in: science, mathematics, arts and crafts and music, while they progress on a grade-level basis in grades three through six and grades seven and eight in: English, social studies 'core' and in physical education. Team teaching is being tried in another study in elementary school science. In this plan the teacher best qualified in a particular area of science is used to direct the learning. The strengths and resources of several teachers are thereby made available to pupils rather than restricting them to one teacher. Still another study in elementary school science is concerned with discovering what scientific topics are most appropriate for elementary schools. Astronomy is being used as a basis for teaching inter-disciplinary fields in science such as mathematics, physics and chemistry. The Minnimast study attempts to correlate science and mathematics curricula for kindergarten through grade nine.

Although these are but a few examples of current studies being conducted in elementary school science, never-the-less, they serve to illustrate the diversity of these studies and to point up the interest being shown in attempting to improve the quality of the elementary school science program. Before any kind of meaningful evaluation of an elementary school science program can be made, it is imperative that certain basic criteria be agreed upon.

Evaluation criteria. The following criteria appear to be in accord with current studies and consistent with well recognized elementary school science programs, therefore they have been accepted as basic guides in evaluating the science programs of the elementary schools participating in the survey. A good elementary school science program should:

1. Be aimed at developing an attitude of inquiry and to encourage its use in other subjects.

2. Consist of activities designed to provide for individual differences of pupils relative to performance skills and learning abilities.

3. Include basic and current science materials, and be presented in sequential order consistent with pupil maturity.

4. Recognize and apply present-day knowledge of behavioral patterns and growth processes of children.

5. Allot sufficient time for studying science.

6. Provide appropriate facilities for learning situations.

7. Possess enough adequately prepared teachers.

Observations and Commendations

Arlington School

This school system could well be proud of its modern, well kept, conveniently arranged physical plant with moderate sized and adequately lighted classrooms. Add to this a cooperative, conscientious, and hard working administration and teaching staff and this school becomes potentially the center of learning and social activity of a progressive rural community.

With few exceptions each teacher taught all subjects in a particular grade in a home-room type situation. Science was taught by a single teacher in both third grades and also in both sixth grades. Overcrowding was a problem when both third grade science classes, with a total of 58 pupils, met in the same room simultaneously. Although it was explained that this was a temporary situation for one year, still, this was unfair to both pupils and teacher for too long a time. Either the schedule should be altered or a part-time teacher should be obtained to alleviate this situation. Insufficient time was apparently allotted for science in the second and in both sixth grades. In the former case science was taught only for half a year, whereas in the latter case it was taught for only two 50 minute periods per week. Both situations deserve attention for an improved science program.

Science textbooks in all grades were of the very latest, state-adopted series. Most of the teachers were moderately pleased with the new science texts. Teachers indicated that pupils showed little interest in doing a number of the science activities presented because they already knew what was going to happen, could read the answers directly from the book, or had already done them. Some teachers were using the older science textbooks. Science supplementary reference reading materials, both books and current magazines in the rooms, were extremely limited.

Bulletin and chalk board space was quite adequate. Pupil work--table space and window shelves upon which to store science projects were especially limited. Room space would permit the addition of these much needed facilities. Except for two rooms with sink and running water, and electricity, science equipment was essentially non-existent in the rooms. Portable, self-equipped science laboratory table-carts would do much to correct these deficiencies.

When asked about science field studies, most teachers agreed that few to none were taken, although all teachers indicated that they had not been denied the opportunity nor the cooperation of the administration to engage in these kinds of science activities. Nor was there evidence of any continuing type of science projects to be found in the classrooms. Mention was made of some use of a fenced plot on the east side of the first grade room for growing some plants. It would appear that this plot might more efficiently be shared by several other grades for science growth projects.

Science in this school could quite properly be characterized as being principally descriptive. Essentially all the emphasis was placed on reading, writing, and talking about science. Projects and science activities were exceedingly few. The most interest shown by pupils for science was observed in the library where all members of one class literally scrambled for science story books. Quite possibly science ideas and pupil activity in more challenging types of science projects could do much to stimulate greater interest in science at this school.

The library revealed considerable undeveloped potential. The room is adequate in size for the present use made of it. The alternate short shifts of library duty shared by several teachers made it definitely less efficient than if it were staffed by one full-time librarian continuously throughout the day. While there were several sets of encyclopedias, all of them except two were too old to be of much value for science references. There was likewise a paucity of current periodicals, although there were numbers of old copies of Time, Life, and National Geographic magazines. Books were appropriately shelved, with those for the primary grades placed on the lower shelves, while those intended for the upper grades were put on the higher shelves. Much credit is due the principal librarian for keeping the library operating as effectively as it does, by keeping it open during recess and lunch periods.

Buckeye Elementary District

Efficient, thoughtfully planned, forward-looking were key descriptive terms that quite appropriately express one's observational impressions of this school's administration, teaching staff, curriculum, and physical plant. The administration knew the class schedules, the teachers, when and how to assemble a group of teachers for conference. The teachers were courteous, devoted, patient, and understanding in working with their pupils. Pupils were well disciplined, respectful, attentive, and responsive. Science was a planned part of the curriculum with all of the upper grades receiving a full period of science each day. The seventh and eighth grades were departmentalized for science. One teacher taught all of the seventh, another all of the eighth grade science. The pupils move, so that only two rooms were required for teaching all of the seventh and eighth grade science. This arrangement should greatly simplify equipping these rooms especially for science. However, these rooms were not so designed or equipped.

The physical plant was conveniently arranged with the newer classrooms being grouped in smaller separate units. The primary rooms were sizeable and set apart from the upper grade rooms. All rooms, with few exceptions, were well lighted, of adequate size and well equipped with chalk and bulletin boards, and comfortable seats.

Science textbooks in all grades were the latest, state-adopted series. In some of the upper grades, workbooks to accompany the text were also observed. Most of the teachers were moderately too well pleased with the text; a few of the teachers found sections in the older science series they preferred over the newer book. An encyclopedia set of fairly recent date was found in nearly every upper grade room. Science story books and current periodicals in the classrooms were either non-existent or in exceedingly limited numbers.

Pupil work-table space and window shelves upon which to store science projects were especially limited. Room space would permit the addition of these needed facilities. No water or sinks were observed in any of the classrooms. The only science equipment observed in any of the classrooms were some paper charts in the seventh grade science room and a partially stocked portable laboratory table in the eighth grade science room. Science projects were either non-existent to few in most of the classrooms. A few teachers indicated they did some science demonstrations. Portable, self-equipped science laboratory carts would be both feasible and most desirable for the intermediate, non-departmentalized grades. Group or class projects and demonstrations appear more suitable for the primary grades. Few to no science field studies were taken. Time and distance were claimed to be the chief obstacles to taking science field trips. Several teachers indicated they have pupils do special science reports. Science films and slides were used occasionally by several of the teachers.

Although science has been recognized as an important part of children's education today, by this school, and has been given a prominent place in the curriculum, it remains largely descriptive and vicarious. Science ideas and self-assurance in the subject appear to be more critical than lack of equipment, or adequate reference materials in this system.

The library appears quite adequate, as well as conducive for accomplishing science reference work. Also sufficient time was made available for each class to use it.

Liberty School

The administration and faculty were most informal, helpful, optimistic, and dedicated people. A number of them had been with the school several years; a few were near newcomers. They were all willing listeners and appeared hopeful that improvements could be made. The newer, single level, well lighted, conveniently arranged, spacious classrooms, contrasted sharply with the older buildings with their high ceilings, cross-lighting, two level rooms, some with highway traffic and hall noise. Windows, doors, and metal lockers in some rooms, severely reduced the amount of available wall space needed for chalk and bulletin boards.

Chalk boards were quite low in some of the older classrooms for upper grade use. This made writing on the boards strenuous and awkward, and viewing difficult for pupils at their seats. Bulletin board space appeared to be at a premium in all rooms, including several of the newer rooms. In the latter case the situation could be readily remedied. In the former, wall space was not available. Moveable bulletin boards would appear to be the only solution in these rooms.

There appeared to be a lack of new science textbooks in the first grade. However, ample supplies of the latest state-adopted science texts were found in all other grades. There were mixed reactions concerning the science textbooks; some teachers liked them quite well; others preferred to use the older science series; a few were non-committal. No supplementary science texts were used nor were any available in the classrooms. A few old reference encyclopedias were observed in some of the intermediate grade classrooms, however there were newer sets in the library.

Time allotment for science was neither uniform nor sufficient, except in the seventh and eighth grades. Some of the teachers admitted that science was not their favorite subject. A few common errors made in class tended to confirm their lack of confidence and enthusiasm for science. Some teachers expressed interest in a sort of semi-departmentalization whereby they could trade their science teaching assignment for another class of greater interest to them. One teacher teaches both seventh grade science classes. Similar class exchanges might quite desirably be effected at other grade levels.

Few to no science projects, except for drawings and charts, were observed in any classrooms. All of the science that was observed being taught was from oral textbook reading or by individual reports. No science demonstrations nor experimental projects were observed in any of the classes. Some rocks, minerals, chemicals, and mechanical equipment were available for use in the eighth grades.

Pupil work tables and window shelves for science project storage were especially needed. Room space would permit the addition of these facilities in most instances. Lack of water and a sink in the room hampers but does not preclude the performance of several kinds of science projects. Natural gas was in a number of the classrooms. Gas outlets could easily be installed to furnish a heat source for certain experiments and demonstrations. Portable, self-equipped, student-made, laboratory carts would be inexpensive, practical, and quite desirable for use particularly in the intermediate and upper grades. Much simpler kits could be assembled to serve the primary grades.

The library was supplied with good, current science reference encyclopedias and an excellent collection of periodicals was available in a separate location. It would seem most highly desirable to have all the reference materials centralized in one room. Also additional time should be provided for pupil use of these materials.

Palo Verde School

The administration and teachers in this system were most cordial, cooperative, and receptive to suggestions for self-improvement. Despite many seemingly adverse conditions they all appeared quite optimistic. All of the teachers lived at the school by preference. Approximately 50 per cent of the pupils were Mexican-Americans and Indians, the rest were whites. Nearly one third of the pupils were transient. These two factors tended to create a wide divergence among individual problems. The three primary grades were taught by one teacher for each grade. The fifth grade was divided with approximately one half combined with the fourth grade in a self-contained type classroom, while the other half was likewise combined with the sixth grade. The seventh and eighth grades were combined in one room and taught by a single teacher.

The physical plant was not new, except for the gym-cafetorium, however it was moderately well preserved and modestly furnished. Bulletin and chalk boards were adequate in most of the rooms. None of the upper grade rooms was equipped with a sink or running water. A new portable laboratory table was observed in the seventh and eighth grade room although it did not appear to be serving its intended function. The teacher indicated that it did receive some use.

Science textbooks, supplementary reference materials, and time allotment for science were all deficient. The textbooks were of the older science series which omit discussions of jets, space flight and atomic energy, although they do contain much good science material. The first grade teacher indicated she lacked science textbooks. Science reference materials in the classrooms consisted of several old sets of encyclopedias in the upper grades with one newer set in each of the fifth-sixth, and the seventh-eighth grade rooms. Science story books were virtually non-existent in the classrooms. The Weekly Reader appeared to be the only current source of science material in the classrooms. Time allotted to science varied widely but in all grades it appeared to be insufficient. In some grades science was combined with health, spelling, or social studies. The science that was taught was quite descriptive; obtained largely from oral reading in class. The only science projects observed were some paper charts; no living or growing things; nor machines, nor mechanical devices.

The school library was supplemented with books loaned from the Maricopa County and the State Book Mobile libraries. Encyclopedias were few with one old set and one newer set being observed. The National Geographic appeared to be the only periodical.

Conclusions and Recommendations

Arlington School

Supplementary science textbooks. Some teachers at Arlington school spoke critically about the new science textbooks. The criticisms may be just. In particular, those suggestions that the science content lacks depth. Much careful study, on the part of several well qualified science teachers, went into the selection of the three basic, state-adopted science textbooks. It is felt therefore that the new science textbooks, in use at Arlington School, do have merit. Quite important is the scope and sequence of topics contained in these new elementary science textbooks. If a teacher knows what to teach in science, in what sequence to teach it, and has sufficient enthusiasm for teaching science; only available time and the ability of the pupils limit the amount of science that can be taught.

It is recommended that teacher's copies of each of the other two state-adopted science textbooks be procured. Each science teacher then should have a copy of all three basic, state-adopted science texts for his or her grade level. It is felt that with these as guides the teachers can gain many supplementary ideas and information for persuing any topic in science to what ever depth is desired.

Centralized science equipment center. A centralized science equipment room is definitely recommended. It should be of sufficient size to provide storage space for three portable, science table-cart combinations; three science box kits; and a supply of simple laboratory equipment. (See "General Recommendations-For All Schools" at end of this section.)

Work tables. It is recommended that at least two work tables be added to each classroom where science is taught. (See "General Recommendations-For All Schools" at end of this section.) Since all of the classrooms have north windows, which are not particularly good for plant growth studies, it is recommended that the fenced patio on the east side of the first grade room, or some similar plot be made available for use by all grades.

Current and supplementary science reading materials. New, important, and exciting changes are taking place in science every day. Information contained in most science textbooks, except for possibly the last chapter, is at least ten years old when the books are published. From these statements it should be clear that science materials contained in textbooks alone are insufficient for meeting the needs of a good science program today. The following changes are recommended for supplementary science reading materials:

1. That a new encyclopedia be obtained every three to four years. (See "Library Program.")

2. That library use time by students be extended.

3. That the science magazine subscription list be expanded.

4. That more new science story books be procured.

5. That a bookshelf and magazine rack be kept in each classroom and re-stocked periodically with books from the library.

Departmentalization of science in intermediate and upper grades. Detroit has had a completely departmentalized science program since 1920 in grades one through six. Recently the trend in this system has been back to the self-contained classroom for science in the first three grades. Science is still taught in grade four and above by science specialists, and in specialized science rooms, in Detroit. To accomplish this kind of departmentalization requires that science periods be made 40 to 45 minutes long and meet three times per week. It is felt that a similar plan to this is practical for Arlington School. As teacher vacancies occur, consideration might well be given to filling them with an elementary school science specialist. Immediate attention might well be given to a quasi-departmentalization in which those teachers with best science training and with strongest interest for science, be assigned to teach more science in lieu of other classes.

Buckeye Elementary District

Supplementary science textbooks. While a number of the teachers liked the new science textbooks they were using, some were more critical of them. The following criticisms were made by teachers: "incomplete", "impractical", and "activities too simple". Several well qualified science teachers in Arizona gave much time and careful thought to the selection of the three basic, state-adopted science textbooks. It never was intended that each school should buy enough copies of all three science series to provide each student with three textbooks. Most schools bought one set for all grades. A few schools bought one third of their books from each series for each grade. It is felt that there is merit in each of these science series. Quite important within each series is the scope and sequence of topics for elementary school science. To avoid omissions and needless repetitions it is probably advisable to use one of the science series as a basic text and to draw from the others for supplementary work. If a teacher knows what to teach in science, in what sequence to teach it, and has the right enthusiasm for teaching science, only available time and the ability of the pupils limit the amount of science that can be taught.

It is therefore recommended that teachers' copies of each of the other two state-adopted science series textbooks be procured. If each science teacher has a copy of all three science textbooks he or she can use them to supplement the basic text. The teachers' guides are quite helpful for the inexperienced teacher, as well as for those who have recently returned to teaching and need some new ideas in science.

Centralized science equipment center. For the present the seventh and eighth grades should remain on a science departmentalized basis. It is recommended that two rooms be specially equipped for doing some simple laboratory demonstrations and experiments. These rooms should contain the following minimum essentials: running water, a sink, gas, electrical outlets, and a teacher's demonstration desk. Flat top tables or desks are adequate for students. A centralized science equipment room should be between the two science rooms or otherwise nearby. The equipment room should be of sufficient size to furnish storage for four portable, science table-cart combinations; four science box kits; and a supply simple laboratory equipment. (See "General Recommendations-For All Schools" at end of section.)

Work tables and window shelves. (See "General Recommendations-For All Schools" at the end of this section.)

Current and supplementary science reading materials. New, important, and interesting changes are taking place in science daily. Science textbooks cannot keep pace with all of these changes. From these statements, it is clear that a textbook presentation alone of science is insufficient. It is recommended that a bookshelf and magazine rack be placed in each of the intermediate and upper grade rooms, and that these be kept re-stocked periodically with science story books and current science magazines. These current science reference materials might be obtained by way of a classroom representative or through a mobile library cart from the library. This system, in effect, would extend the potential use-time of the library.

Departmentalization of science in intermediate grades. Detroit has had a completely departmentalized science program since 1920 with science specialists teaching in special science rooms for grades four through eight. It is felt that a similar plan is practical for Buckeye School. As teacher vacancies arise, consideration might well be given to filling one or more of them with an elementary school science specialist. An alternate plan might be semi-departmentalization for science, similar to the present one for seventh and eighth grades.

Liberty School

Supplementary science textbooks. The mixed expressions of likes and dislikes for the new science textbooks, in use at this school, by the teachers was not uncommon. Recognizing that everyone can not be equally well pleased with the same textbook; still it should be remembered that many quite well qualified science teachers and supervisors spent considerable time and effort in selecting these three basic science series before the state adopted them. It is felt therefore that each science series has some merit. One of the strong points in favor of adopting the same science series throughout the same system is to maintain some scope and sequence to the topics treated in science. It is recommended that teacher's guides for the other two science series be obtained, so that each science teacher may have a copy of all three basic, state-adopted science texts. Beginning teachers and those returning to teaching will appreciate from and profit by having these supplementary science source materials made available to them.

Central science equipment room. It is recommended that a central science equipment room be established, in which science materials for the whole school be kept. This room should provide for ample storage, and ready accessibility to all science teachers at all times without causing class interruptions. Two science laboratory table-carts and two box science kits are recommended for the present needs of this school. (See "General Recommendations-For All Schools" at end of this section.)

Work tables and window shelves. Noting the lack of work table space and window shelves, in some rooms, it is recommended that a minimum of two flat top tables be provided in each room. (See "General Recommendations-For All Schools" at end of this section.)

Supplementary and current science reading racks. For a school of its size, the Liberty School has an excellent source of current and supplementary, science reference materials. The time for using these source materials could be extended by providing a bookshelf and magazine rack in each classroom. For maximum efficiency these racks should be re-stocked periodically with materials from the central library.

Semi-departmentalization of intermediate and upper grades. Although Liberty School is somewhat small for complete departmentalization, two semi-departmentalized plans are regarded as being both feasible and desirable. One plan would be to have all the science in grade four and above taught by a science specialist. A second plan would be to have those teachers with the better and more recent preparation in science and more enthusiasm for science, teach two or more grade levels of science. The latter plan might receive immediate attention, whereas, the former proposal could be considered as teacher vacancies arise.

Palo Verde School

Science textbooks. Copies of one of the newer, state-adopted, science series should be purchased as soon as possible to correct the textbook shortage in the first grade, and to up-date the science taught in all other grades. It is further recommended that teacher's guides for all three of the state-adopted science series be obtained immediately. These guides could be used for much good supplementary materials for the new teachers, as well as for those who have recently returned to science teaching. It is also recommended that the time allotment for science be increased, particularly in grades four and above.

Science equipment area. Although an elaborate supply of science equipment is not essential for science teaching, a much better job of teaching elementary science can be done with some simple science supplies. One common science storage area should be quite satisfactory for a school the size of Palo Verde. It should be an area accessible to all science teachers such that no classes will need be interrupted in getting supplies at any time. Two science box-kits and one portable laboratory table-cart should adequately serve the present needs of this school. (See "General Recommendations-For All Schools" at end of this selection.)

Work tables and window benches. Some of the wide range of individual differences within particular grades at this school might be, to some extent, alleviated by introducing more project work in science. To do this would require more work table space, since tablet arm-chairs or sloping top desks are not well suited for doing science projects. Inside window benches should be installed wherever practical. These surfaces make excellent storage space, particularly for growing types of science projects. Two flat top tables should be included in each classroom. (See "General Recommendations-For All Schools" at end of this section.)

Current science reference reading materials. A bookshelf and magazine rack is recommended for each room for grades four and above. Each of these should be re-stocked periodically with new science story books and current science magazines from the library. Having these kinds of materials available in the rooms effectively extends the use time of the library. Two recent sets of encyclopedias are especially recommended for the library.

Departmentalization of science in intermediate and upper grades. Another full-time teacher is much needed in the system. It is recommended that consideration be given to obtaining an elementary school science specialist when an additional teacher is employed. This science specialist could be assigned to teach all of the science in grades four and above. This also would make more time available for science per week.

General Recommendations-For All Schools

Based upon the forgoing point of view, critical observations, and analysis of the science program in the several elementary schools comprising the Buckeye Union High School District, several recommendations have emerged. They are offered with a firm conviction that if conscientiously executed, they will distinctively enhance the quality of science education in the schools. An attempt has been made to rank these recommendations according to: order of importance, urgency, and feasibility from highest to least priority. It is admitted that in some cases, the ranking order is somewhat arbitrary.

Work tables. If pupils are expected to work on science projects, it is important that they have convenient and adequate work table space and suitable storage places for their projects. Tablet arm-chairs or sloping top desks are not suitable surfaces on which to do science activities. It is recommended that at least two work tables be added to each classroom where science is taught. These tables should be two by six feet with flat tops and vary in heighth from 24 to 28 inches depending upon grade level. They should accommodate pupils comfortably in a standing position. These tables should be sturdily constructed. Tablet arm-chairs or sloping top desks are not suitable kinds of surfaces on which to do science projects. It is further recommended that inside window shelves one foot wide be provided where ever practical. These shelves could be used for plant growth studies, and project storage. Growth studies are not limited to the primary grades.

Centralized science equipment center. Centralized science equipment centers are definitely recommended for all schools. They should be of sufficient size to provide storage space for portable, science table-cart combinations; science box kits; and a supply of simple laboratory equipment. The kits would be used by the primary grades; the supplies for re-stocking the kits and carts, as well as for the seventh and eighth grade science rooms. The equipment room could be supervised by the eighth grade science teacher; however, it should be made accessible to all science teachers at all times without interrupting any class. The carts could be made quite economically in the school industrial arts shop. (See Supplement D) Included in the equipment on the carts should be a tank of bottle gas, electrical outlets, extension cord, water tanks and catch basins, upright and horizontal support rods. The portable laboratory carts could be easily rolled to any classroom as teachers request them for special science demonstrations. The carts and central science equipment room are considered to be more functional and less expensive than individual science kits which are on the market today.

Science consultant-coordinator. It has been said that in unity there lies strength. Unity of purpose in an over-all science program for the four elementary school districts does appear immediately feasible, purposeful, and definitely desirable. As a means to efficiently accomplish a unity of purpose for an over-all elementary school science program, it is recommended that:

1. The several separate elementary school districts concerned obtain the services of an elementary science education consultant from one of the universities in the State, to work with administrators and teachers of all school systems in planning a unified science program.

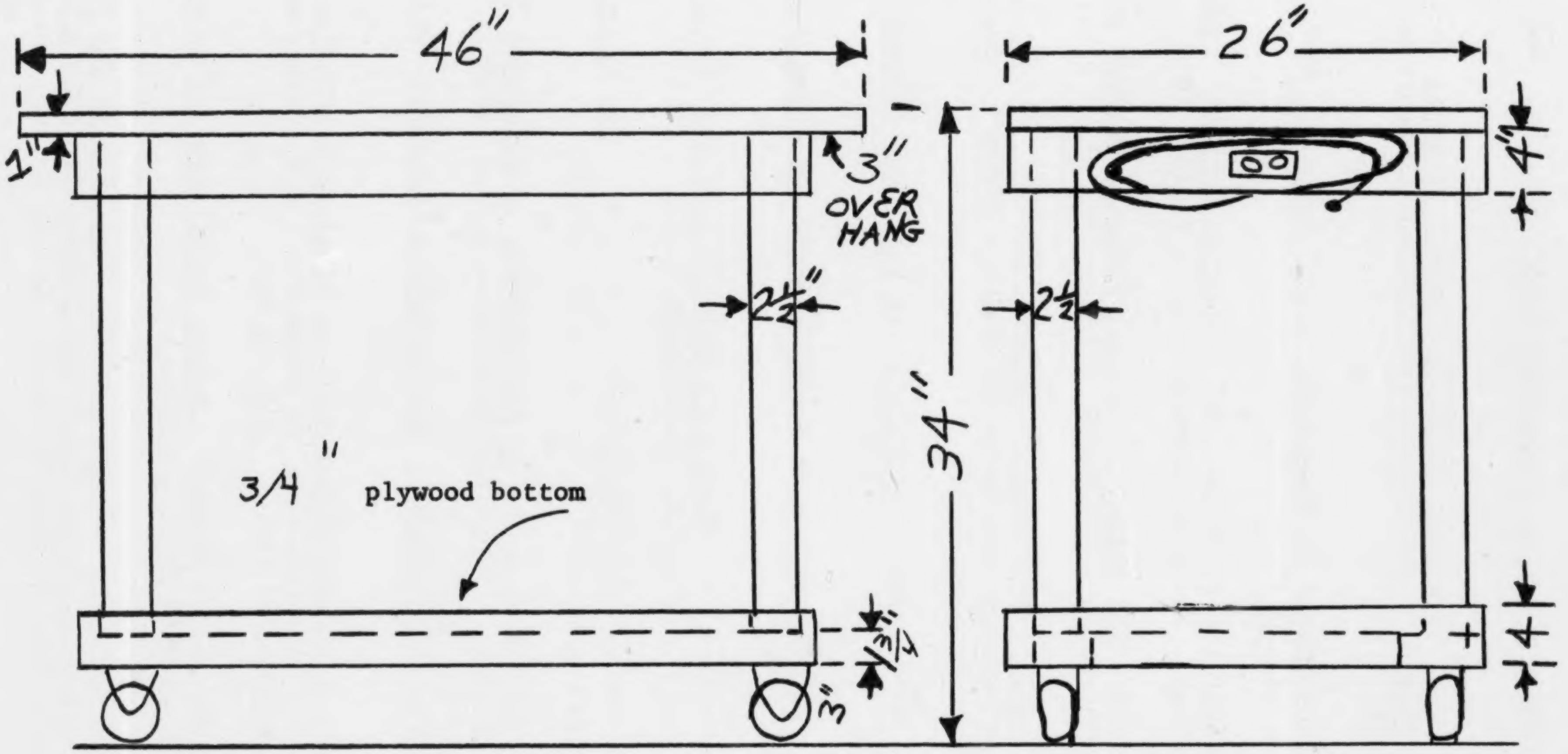
2. This consultant be retained for a time to make periodic observations at the schools in an effort to assist each school with implementing the planned science program.

In-service training. That the teacher is the most influential person in the lives of young people in determining their likes or dislikes for a particular school subject, few people would deny. The problem of selecting well qualified teachers and of helping them to remain so is paramount. The burden of solution of this two-fold problem rests squarely with the administration and school board of each school system. Teachers have already been selected; some of them are potentially very fine science teachers, others find science teaching quite a bore or are frightened because they lack understanding in science. Good teachers, who have interests and talents in other areas than science, must be retained. However, they should be re-assigned to duty where they can serve the school more efficiently and will in turn be happier in their work. The good science teacher's education is never complete, for in a rapidly changing scientific world, such as ours, he needs to continually strive to keep abreast of the many changes that are constantly taking place. Even the better science teachers need help and encouragement in finding solutions to some of their classroom problems. In every school visited there were teachers who expressed a desire and a felt need for some in-service instruction in science. Such instruction could quite practically be brought to the Buckeye area in the form of an in-service extension course. This type of course should be copiously demonstrated and enriched with science ideas. The teachers would need to be involved in the demonstrations also, so as to gain manipulative skills and to develop self-confidence. Much science can be taught with no expensive equipment, if the teacher has the right ideas and understandings. This type of course should prove particularly beneficial to the newer teachers and to those who have recently returned to teaching. Therefore, an in-service extension course in science for teachers is recommended. The course could be taught in the Buckeye vicinity and paid for jointly by the various participating school districts; or by the participating teachers.

In final conclusion it appears significant to note that elementary school science has emerged as a distinct area of study and is being increasingly viewed as a necessary part of a child's general education. The most important ingredients needed for a good science program in our elementary schools today to effectively cope with the demands of a highly scientific world are: sufficient time allotted for science teaching; specially prepared science teachers who are enthusiastic about teaching science; some simple laboratory equipment; and sufficient available current science reference materials.

SUPPLEMENT D

PORTABLE SCIENCE LABORATORY TABLE


46"
26"
1"
3"
OVER HANG
2½"
2½
4"
34"
3/4"
plywood bottom
4
3/4
3"

3" x 1¼" Rubber wheels. (2 swivel; 2 fixed)

2" X 4" LEG BRACE

1" x 4" Rails - top & bottom

3/4" plywood top covered with formica or similar type material

25' Electric extension for table outlets.

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ART EDUCATION

Point of View

During the last two decades pronounced changes in the concept of the art program in the elementary school have taken place. Contemporary art education programs, in harmony with modern educational philosophy, have been structured toward the development and discovery of the individual as a major objective. Such broadly designed programs have assisted in the intellectual, emotional, perceptual, aesthetic and social growth of all children. Well designed art education programs have been characterized and shaped by several fundamental commitments:

1. All children are potentially creative in some aspect of the visual and plastic arts.

2. Creative art experiences promote the development of the individual through self expression and self adjustment.

3. Creative art experiences may provide for emotional release and emotional growth.

4. Creative art experiences aid in the development of perceptual literacy and discrimination.

5. Creative art experiences may act as important integrative activities.

An art program growing out of these concepts places special emphasis on art expression as an active part of the child's life. Child experience, imaginative activity, the activation of knowledge as it is acquired, and the understanding of children as individuals are all primary considerations of contemporary art programs.

Art activities and motivations are varied yet consistent with information related to developmental stages and special individual differences. While the list of art materials in the schools has grown from the readily available and the traditional to the more experimental and esoteric media, to a large extent it has not been the materials that have resulted in a creative, dynamic program, but the flexible, imaginative, identifiable qualities of the motivations.

Within the general structure of developmental growth several activity nuclei appear to be effective in the individual classroom. The first of these revolves around experiences in art. These are designed to develop creative art behavior, to increase visual awareness, to explore media and to aid in the understanding of aesthetic judgments. These art learning experiences, as well as the other nuclei, may in turn focus on experiences of the self, the home, and the community. Flexible but regular amounts of time should be scheduled in the total curriculum for these experiences.

Additionally, many self directed activities that allow children voluntarily to engage in art activity may grow out of these central areas. Finally, there are experiences that take place in relation to other areas of learning such as reading, geography, science, music. Since the subject matter of art is the broad base of man and environment, it is possible that subject matter for art experiences will come from every phase of life.

Therefore, children will, at times, use what they are learning in other areas of the curriculum as ideas for art expression. These ideas become the starting point for an expression that grows as art and not just as a graphic summary or illustrative statement of parts from other subjects. Art expression is a unique form of human communication and learning. It must not become representative or merely factual just because it can be correlated with other subjects. Instead, through the process of self-identification, the child utilizes the relational subject matter as a means of self discovery through art. If in the social studies, for instance, the children are studying the great trek across the continent, they might place themselves in the position of children undergoing the many hardships of the journey. Through this identification and personal awareness they can express their feelings and thinking through art. Since art to a large extent is the projection of human spirit, human thinking and human emotion, it can add these factors to the factual, and humanly personalize the learning of facts. Nevertheless, it is important that even with the fundamental emphasis on individual growth and the functional closure aspects of integrative experiences, sequential planning within a school or a district is desirable to aviod both meaningless repetition and large voids in sequential learning.

In planning for and with children, especially during the elementary school years, it is essential that sincere approaches based on individual and developmental needs be used in preference to sterotyped means and extraneous devices.

The long range view of art education in the elementary school, using art as a means of expression and discovery, focuses on the ultimate development of independent thinking, imaginative, open and aware adults prepared to live in and contribute to a dynamic society.

Observations and Commendations

Arlington District

The Arlington School District demonstrated a potential for the introduction of an effective art program. Conversations with and observations of individual teachers suggested a personal desire and an educational orientation for more art activities. Many individual teachers, especially in the primary grades, demonstrated an understanding of the integrative function of art expression in the self contained classroom. While there was no art program involving sequential planning in the total curriculum, many teachers expressed an interest in possible solutions to this problem.

There was no art room, and one may not be absolutely necessary in the general structure of a school this size. The classrooms are adequate for art activity although additional storage and some special art equipment may be desirable, especially in the upper elementary grades.

The art program in the upper elementary grades, because of present time limitations and some individual teacher disposition appeared to be nonexistent except to serve a superfluous, non-integrated, decorative function. There was little evidence of the utilization of art experiences as means for individual discovery, increased visual awareness, or as meaningful learning experiences.

Buckeye Elementary District

The Buckeye Elementary School, structured from the primary and intermediate self-contained classrooms to the departmentalized upper elementary grades, represented the familiar variations found in an elementary school having no sequential art program.

The primary grades, especially, reflected an excitement, an interest and a potential for effective art expression as a means of child growth. Child art was frequently exhibited as a natural function of the educational process. Individual teachers talked enthusiastically of their own personal exploration in art or of the art experiences of their classes. A recent in-service workshop apparently served as a strong motivation for many teachers both in the primary and the intermediate grades. Certainly workshops of this type may represent beginnings toward the development of a stronger program throughout the entire school.

The intermediate grades also demonstrated an interest in art activities and in exploring possibilities for designing more effective art experiences. Here again a need for the formulation of a school-wide program based on scope and sequence in art is essential.

The departmentalization of the upper elementary grades allowed little time for art activities except as decorative adjuncts usually extraneous to the total school program. There was no art room nor any scheduled space for art activities in the upper grades. At the time of the survey visitation there was no art teacher. However, strong administrative interest in the need for an effective art program throughout the whole school was expressed.

Liberty School

The Liberty Elementary School had, at the time of the survey visitation, no art program based on scope and sequence. Nevertheless, teachers at all levels expressed an interest in art experiences and the possibilities for the organization of such a program.

The primary grades, because of the closely related nature of the activities in the classroom, manifested some beginnings toward the concept of art as an integrative activity.

There were evidences especially in certain upper elementary grades, as shown by the exhibition of student art work, of a potential for an art program at these levels. These interests on the part of the faculty should be commended, enlarged and encouraged.

Palo Verde School

The Palo Verde School, while having no overall art program based on scope and sequence, nevertheless revealed the potential, interest, enthusiasm and dedication of a teaching staff capable of developing an exciting, meaningful program. Teachers and administration both evidenced an enlightened interest in art experiences for children at all grade levels. Several classrooms literally overflowed with child art expression as a significant educational activity.

Conclusions and Recommendations

Arlington District

The following recommendations are directed toward helping an art program become a meaningful series of related experiences which may guide children in the direction of self discovery through art.

1. It is essential, if art experiences are to be educationally meaningful, that a flexible program designed around developmental scope and sequence in art be developed. The program should be structured to include all grade levels. The most desirable overall solution to this problem, common to many school districts, appears under "General Recommendations" in this section of the report.

2. In-service workshops in contemporary approaches to art education may serve to stimulate an awareness of the potential of art experiences in the classroom.

3. An interested teacher or a group of teachers working with administrative approval and with planning time, may explore the development of an art program having scope and sequence. This group may become responsible for the guidance of such a program.

4. In-service courses in art education would be an effective means for developing confidence in art expression, especially among teachers in the upper elementary grades.

Buckeye Elementary District

The following recommendations are directed toward the design of an art program composed of a series of related experiences which may contribute to the growth of all children.

1. A flexible but regular program of art experiences designed around developmental scope and sequence in art should be developed. This program should be structured to cover all the elementary grades.

2. A qualified art teacher possessing an art education background should be employed to serve as teacher-consultant. The initial responsibilities of this teacher should center around consultation and advisement concerning the structuring of the overall program. More information on the responsibilities of the art teacher-consultant will be found under "General Recommendations" in this section of the report. An elementary school the size of Buckeye, having the expressed interests of teachers and administration, and the desire for a significant total curriculum for the children needs a dynamic, contemporary art program. The district should have little difficulty supporting the activities of an art teacher-consultant.

Liberty School

These recommendations have as their prime purpose the development of an art program containing a series of meaningful experiences designed to help children in the direction of self discovery through art.

1. A program designed around developmental scope and sequence in art should be considered. All grade levels should be included. The most desirable solution to this problem appears under "General Recommendations" in that section of this report.

2. In-service workshops involving activity and discussion may serve to stimulate an interest in the important place of art activity in contemporary elementary education.

3. An interested faculty member or committee may be selected by the administration to gather information about art programs and to act as a guiding agency for the forming of an art program. This may be done on an exchange teaching time basis.

Palo Verde School

The following recommendations are directed toward the organization of an art program having developmental scope and sequence throughout the entire school.

1. Consideration should be given to the design of a program in art based on sequential learning. A possible solution to this problem, especially in a school as small as Palo Verde appears under "General Recommendations" in that section of this report.

2. In-service workshops, focusing on the nature of contemporary art education and involving activity, may serve as stimulation for the most effective integration of art in the classroom.

3. An interested faculty member or a committee should be encouraged to undertake responsibility for gathering information about the nature of a desirable art program. This teacher or study committee could later serve to guide the implementation of an art program.

General Recommendations-For All Schools

The following recommendations focus on some of the future possibilities for the implementation of art programs in the previously mentioned Elementary districts.

1. Smaller elementary school districts which, because of financial, general space, and related administrative limitations, cannot obtain a full-time art specialist, should consider the possibility of employing an art teacher-consultant on a joint or shared basis. It is unlikely that any well designed comprehensive art program could be offered for children at all levels without the employment of a qualified art teacher possessing an art education background. This service is usually not available in smaller districts and, as a result, art experiences at best are arbitrary, unrelated, ineffective activities.

2. The initial responsibilities of this art teacher-consultant would center around consultation and advisement concerning the structuring of an

overall art program for the several districts to be served.

3. The administrations should actively assist in the development of plans, in conferences with the faculties and art teacher-consultant, for effective implementation of a well-planned art program. Of the many possible solutions the following one seems to be most functional in the present situation:

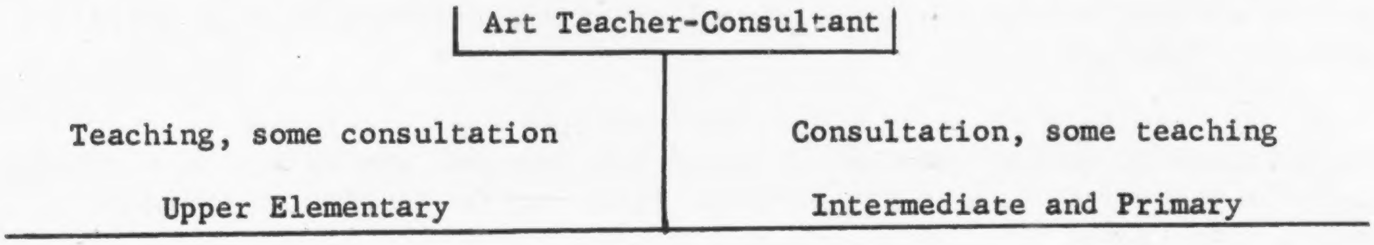

Figure 5. Art Teacher-Consultant

The art teacher could meet grades six, seven, and eight two or three times a week, in an art room, depending on scheduling and room facilities. In addition, he could coordinate in conferences with the regular classroom teachers of these grades, the art activities of the classrooms. A flexible schedule could be utilized for this, but *actual teaching time in the schedule of the art teacher should be allocated*. The art teacher should be available on a flexible schedule, for consultation with teachers of the first through the fifth grade. It is important to the program that *time be allocated* for this activity.

The newer, more widely accepted, concept assumes that in the elementary school the classroom teacher is, and should be, the art teacher. Programs involving art consultation recognize that the elementary teacher is in a position to know the individual child best, especially in relation to overall scope and sequence of various learning experiences, and thus is the person best situated to teach art to elementary school children. However, he (or she) should not be a teacher without special help. In order to develop security and confidence in creative activity he needs qualified guidance, in-service experience and assistance. These are part of the responsibilities of the art teacher-consultant. The contemporary art program assumes that the art teacher-consultant should be looked upon as a helping teacher. Specifically, the responsibilities of the teacher-consultant are:

1. Assuming responsibility for the total art program; development, management, and over all supervision.

2. Developing basic philosophy.

3. Preparing broad, flexible curriculum plans *with* classroom teachers.

4. Organizing in-service experiences such as clinics and workshops.

5. Procuring and selecting art supplies and equipment.

6. Demonstration teaching when essential to full understanding.

The art teacher in the role of consultant utilizes all of the following approaches:

1. Group conferences with teachers.
2. Individual conferences with teachers.
3. Workshops in art.
4. Exhibitions of child creative activity in art.
5. Aesthetic experiences utilizing community cultural resources.
6. Visits and demonstrations by qualified professional people.

The art teacher or consultant would work with both faculty and administration to offer suggestions for more effective integration and correlation of art activities with daily classroom experiences. He would be available as a resource person for technical information (how to make papier mache at a particular grade level, etc.). In addition he would be available, on a flexible schedule, for "idea" conferences. In order to help develop teacher confidence the consultant would help evaluate the effectiveness of art teaching experiences and aid in planning those experiences.

Art is no longer a special subject, at least in the elementary school. If it is to take its place in the integrated curriculum then it must be an integral part of that program, growing out of the needs of the children. It must be related to other classroom experience and be flexible enough to allow for constant growth. Such a program will be meaningful and successful for the children only if based on long range planning and a sound educational philosophy.

The annotated art bibliography for elementary school art which is attached to this report should be of considerable value to classroom teachers.

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MUSIC PROGRAM

Point of View

Underlying all objectives of music education in importance is THE CHILD--we cannot expect to make a performing musician of each child, but we can hope to build a love and understanding of music that will enrich every child's life and help him to enjoy the rewards that this understanding of music will provide, no matter what his vocation in life may be.

There is no one "best" method of teaching music in the elementary grades; rather, there are many fine approaches with the same over-all objectives. These general objectives may be defined as follows:

1. To provide day-by-day experiences in singing songs of a nature that hold meaning and interest for a child and that will encourage him to listen not only to his own singing voice, but to the singing of others as well.

2. To provide experiences in physical movement which are related to the rhythmic content of the music.

3. To encourage the active use of the mind and the imagination while listening to good music.

4. To develop interest in musical instruments and encourage the development of skill on individual instruments.

5. To constantly build musical growth through many experiences in singing, rhythmic activities, exploratory listening, and instrumental study; to encourage creative activities for interpretation.

Whether the "method" in teaching music is through departmentalization (special music teacher handling all aspects of the program); self-contained (classroom teacher teaching the music in her classroom); or a combination of classroom teacher and music teacher working cooperatively (using music activities to correlate with and to enrich the language arts, science, and social studies)--OBJECTIVES IN MUSIC EDUCATION CAN BE ACHIEVED!

A clear understanding of District philosophy is basic if the music program is to function effectively and grow in terms of "long range" planning. Believing in and supporting the same general philosophy will provide a two way avenue of communication that will support the program of the music educator and will, at the same time, re-enforce the philosophy of the District.

Observations and Commendations

Arlington District

General Music. A special music teacher is hired on a four day per week basis to teach general music classes in grades one through eight. Each classroom of each grade level received music instruction twice a week with each period lasting one-half hour.

Music texts were adequate and there were two pianos in good condition in the school, as well as a set of resonator bells, an autoharp and rhythm instruments which are shared with Harquahala School. A tape recorder was available for use. Only one phonograph in good condition was available. Temporary facilities for music classes were not good, but next year a new music room for both vocal and instrumental classes will correct this condition.

Inquiry regarding the first and second grade classroom music at Harquahala revealed a self-contained classroom situation with adequate basal texts and some recordings to accompany the text.

A rehearsal for an all-school program was viewed, and vocal quality and enthusiasm in singing was evident.

Instrumental music. The special music teacher in the four-day schedule taught beginning junior and senior band. Students begin instrumental instruction at the fifth grade level; individual time was scheduled during the classroom day for beginners' instruction, as well as sectional and full band rehearsal in the junior and senior division. There were 11 members in the junior band with two flutes, two clarinets, two saxophones, one trombone, one cornet, one trumpet and a set of drums. As students progress, they were transferred into the senior band which consisted of 16 members. Time allotment for junior band practice was two 30 minute periods a week and senior band received two 50 minute periods per week.

Inquiry regarding school owned instruments revealed that about half of the instruments were purchased by the school and the balance were student owned. Instructional method books were as follows: EASY STEPS (6 way Concert series) published by Mills Music, Inc., for junior band instruction; the RED BOOK SERIES published by Pro Art was used for the senior band.

Buckeye Elementary District

General music. A special music teacher has been hired to teach general music classes in grades 1-2-3-4-5-6. The following schedule of time was allotted: Each first, second, and third grade class received instruction from the music teacher once a week for a period of 35 minutes; each fourth, fifth, and sixth grade class received instruction from the music teacher once a week for a period of 45 minutes. Classroom teachers were not present during the music period. They brought the students to and from the music room. There were no general music classes scheduled for either seventh or eighth grade students.

A functional music room was provided in the primary area; a music room was also provided in the intermediate area of the Buckeye Elementary Schools. Good lighting, adequate bulletin board space, fine storage space, excellent phonographs and pianos were provided in each music room. Adequate music texts were provided in the music room for the individual classes as they received music instruction. An autoharp, resonator bells, and rhythm instruments were also in the music room.

Inquiry regarding the extent of the listening and rhythmic facets of the music program revealed that time allotted for music classes did not allow as much activity in these areas as would be desired.

Experiences in public performance and school-community affairs were limited to an operetta in the Spring in which the 1st grades participate as a rhythm band, and students in grades 2, 3, 4, and 5 participate in the operetta. A sixth grade girls chorus appears on the program sponsored by the local Women's Club. Practice in preparation for this appearance was held during the last period of the day, thus eliminating the regularly scheduled sixth grade music class during this period of preparation.

The schedule of the music teacher on Monday, Wednesday and Friday was from 9:00 A.M. until 2:20 P.M. However, on Tuesday and Thursday her schedule lasted until 3:38. Some preparation time was provided in the weekly schedule.

Instrumental music. An instrumental program which begins at the 4th grade with between 50 and 60 students each year; an intermediate band at the fifth grade level which numbered 55; and an advanced band of 85 members in the sixth, seventh and eighth grade levels in a school with a total enrollment of 600 is a remarkable accomplishment. One third of the total enrollment in the Buckeye Elementary Schools was actively enrolled in the instrumental program.

Added to this, a truly educational instrumental program was observed under the instruction of a highly professional music educator and it appeared that an almost "model" instrumental program had been attained.

The facilities of a barrack type building appeared to be adequate. The room was well lighted and large enough to accommodate the full band. Adequate music stands, storage space and items pertaining to the instructional program were noted, as well as interesting chairs with a music motif.

An experimental scheduling program was begun last year in which instrumental students in the intermediate and advanced bands were scheduled into specific homerooms. Beginning students in the fourth grades were not included in this arrangement. This plan was being evaluated; a rotating system of rehearsals for full band did not appear to present problems to either home room teachers or to students with regard to school routine.

An annual budget of approximately $1500 was used for the purchase of school-owned instruments, sheet music and other needs of the instrumental department. The school owned the bass horns, oboes, French horns, sousaphones, percussion and an altonian. However, all other instruments were student-owned. A bassoon was the only instrument lacking for full band arrangements. The rental program of two months trial with applied rent on the payment of the instrument had proved to be satisfactory for many years. The purchase of student books was handled through the instructor.

The intermediate and advanced band perform at three large programs during the year, plus school assemblies. The marching band was composed of advanced band members only and this organization has at least five opportunities for performance during the year. Baton lessons were given by qualified instructors. Uniforms (100) were originally purchased with the returns from magazine sales by a school sponsored activity group. The attractive vests and cowboy hats were stored and kept in excellent condition in the storage room of the instrumental department.

The First Division Band Method by Weber (Belwin) has been evaluated as fine instructional material; a fine library of full band arrangements had been built up during the years.

The discipline of the group was excellent, as well as the rapport which existed between the instructor and students. The variety of exercises which were initiated during the instructional period, along with playing in harmony broke the monotony, while it increased the efficiency, effectiveness and morale of those in the band. Experiences in single and group participation were provided which enabled all members of the band to obtain additional musical experiences in critical listening, music appreciation and general musical growth.

Liberty School

General music. It was observed that the music program for grades one through eight was being taught as follows: Grades 1 and 3 were taught once a week for a period of one-half hour by a teacher whose normal teaching position was that of first grade teacher. In addition to her own homeroom, this teacher was responsible for music instruction in two other first grades plus three third grades. The teachers of these grades alternated positions during the music class. Grades 2 and 4 were taught music once a week for a period of one-half hour by a teacher whose normal position was that of teaching second grade. This teacher was responsible for music in two other second grades and two fourth grades. Classroom teachers alternated during her absence from her own homeroom. Music in grades 5, 6, 7, and 8 was being taught by a sixth grade teacher whose responsibility covered two combined fifth grades, two combined sixth grades, two combined seventh grades and two combined eighth grades; each of these grade levels met once a week for a one hour period. Teachers (again) alternated positions to fill the vacancy of the sixth grade teacher while music instruction was given.

From the equipment standpoint, there was one phonograph per grade level in grades 1, 2, 3, 4; recordings for use on the phonograph were brought by either students or teachers from their personal collection. However, there was some indication that a limited number of recordings were to be purchased by the school.

Textbooks were available for instruction in grades 2 through 8 in limited quantity; many appeared to be in poor condition.

Grades 5, 6, 7, and 8 met in a room which appeared to serve a number of other instructional purposes. The primary grades met in their own classrooms with music instruction given by the classroom teachers as designated.

In brief, the music program appeared to be semi-departmentalized with a limited amount of equipment for instruction.

There was no instrumental instructional program in the school.

Palo Verde School

General music. One teacher is designated as an over-all coordinator of music. However, the music grade 1 and music grade 4 is taught by the individual classroom teacher with cooperative planning under the coordinator. *Grade 1* is self-contained and uses music throughout the day. *Grade 2* receives music instruction twice a week in periods of 25 minutes each. *Grade 3* receives music instruction twice a week in periods of 40 minutes each; *Grade 4* is self-contained and uses music in a flexible manner. *Grades 5, 6, 7, 8* receive music instruction twice a week in periods of 40 minutes each.

One room is designated as the music room. However, not all classes are brought to the music room since two classes conduct their own music within their own homeroom. This did not appear to present any difficulty or make the program any less effective.

In general, an over-all attitude and atmosphere for musical growth appeared in evidence. Interesting bulletin boards and displays of a musical nature were noted.

Sufficient basal music texts were available in grades 1, 2, 3, 4. In grades 5, 6, 7, and 8 the basal text provided covers an interest span in music from grades one through eight.

Limited recordings of high quality were available for use by all grades. Two pianos, a chord organ, resonator bells, an autoharp and rhythm instruments were available.

Music programs with all school participation were an important part of school-community relationships.

There was no evidence of an instrumental program.

The music coordinator had attended many music workshops in the Phoenix area, as well as taken recent music extension classes during the summer term. Additional evidence of professional growth was noted.

Conclusions and Recommendations

Arlington District

In light of the survey which was made, and considering improvements which could be made, the following recommendations are submitted:

1. With the advent of a specific music room, the music teacher should be consulted as to proper placement of storage facilities. Bulletin board space and black-out curtains for the showing of music films and film-strips should be included.

2. A new supplementary music text for each grade level would strengthen the present general music program. Recordings to accompany music texts would be helpful to the music teacher as well as to the classroom teacher for use in correlation with social studies, language arts, and science.

3. The purchase or rental of fine music films and film-strips would enrich both the general and instrumental music programs.

4. Additional resonator bells, rhythm instruments and recordings should be purchased for both Harquahala and Arlington.

5. Consultation with the music teacher revealed that the listening program is perhaps the weakest facet of the music program. Information regarding the Music Memory program in the Valley was given as one suggestion for building interest and building a fine library of recordings. This program could be correlated with the classroom subjects with cooperative plan-

ning by the music teacher and classroom teachers.

6. The "live" concert presented by the Arizona State University Symphony Orchestra would be very beneficial to both the instrumental students and the general classroom music in the culmination of studying the eight selections through recordings.

7. With expansion of the listening program, more phonographs are needed. It is suggested that one phonograph for two teachers to share would give the music program needed strength.

8. The carry-through of the music activities into the classrooms may be stimulated through efforts of the music teacher's requesting time for in-service training to help classroom teachers.

9. The music teacher should request a copy of the social studies textbook from each grade level, so that she may gear the music experiences to better correlate with areas of classroom subjects.

10. The use of interesting bulletin boards in both the music room and the individual classrooms will add interest and provide motivation for students.

11. With the responsibilities of both general and instrumental music, a four-day schedule does not appear to be adequate to meet the demands of a necessary full schedule. It is suggested that a five-day program be initiated.

12. The Arizona State Music Guide should be reviewed in depth.

Buckeye Elementary District

General music. In light of the survey which was made, and considering improvements which could be made, the following recommendations are submitted:

1. First and foremost, the schedule in the District should provide scheduled time within the school day for general music classes at the seventh grade level and an elective music class at the eighth grade level. At present, there is a breakdown in the general music program following the sixth grade. A suggested schedule which would include seventh and eighth grade general music is as follows:

This schedule, considering existing circumstances and with the number of classrooms involved at each grade level, would provide music instruction in grades 1-2-3 as described below. With a cooperative classroom teacher and music teacher situation in grades 1-2-3, individual classes would receive music instruction in the music room once a week for a period of 20 minutes. The classroom teacher would accompany her class and participate in the music activities presented by the music teacher. On Friday mornings, the music teacher would be "on call" by classroom teachers for the purpose of demonstration lessons in individual classrooms.

In grades 4, 5, and 6 where at present there are five classrooms at each grade level, it is suggested that two classrooms come to the music room together, with the fifth classroom alternating on a rotating schedule, so that during the period of five weeks, each classroom will come to music class individually as well as in a group. Time allotted in this suggested schedule would be two 25 minute periods every week at the fourth, fifth, and sixth grade levels.

At the time of the survey, there was no scheduled time for seventh and eighth grade music. It is suggested at the seventh grade level that music and art classes could alternate on a semester basis. One half of the seventh grade students would receive music once a week for a period of one-half hour. Although music at the seventh grade level would be a requirement, music at the eighth grade level would be elective on a full year basis. As a beginning on the Junior High general music, both seventh and eighth grade students could be scheduled for a period of one-half hour a week. Special groups such as sextettes, quartettes and small mixed groups could be scheduled weekly before school or during a 15 minute mid-day time.

TABLE II

BUCKEYE ELEMENTARY DISTRICT
GENERAL MUSIC SCHEDULE

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:00-9:20	1st	1st	2nd	3rd	"On Call" to individual classrooms.
9:30-9:50	1st	1st	2nd	3rd	
10:00-10:20	1st	2nd	2nd	3rd	
10:30-10:50	1st	2nd	3rd	3rd	
(Music teacher would have 1 hour each day for lunch; 1 hour for preparation)					
1:00-1:25	(2) 4ths	(2) 5ths	(2) 4ths	(2) 5ths	1:00-1:30
1:30-1:55	(2) 4ths	(1) 5th	(2) 4ths	(1) 5th	¼ of 7th
2:00-2:25	(1) 4th	(2) 6ths	(1) 4th	(2) 6ths	1:35-2:05
2:30-2:55	(2) 5ths	(2) 6ths	(2) 5ths	(2) 6ths	¼ of 7th
		(3:00-3:25)		(3:00-3:25)	(other ½ of 7th grade schedule 2nd semester)
		(1) 6th		(1) 6th	
					2:15-2:45
					8th grade elective for full year.

2. There is a need for an adequate library of recordings upon which a fine listening program could be extended. At present, approximately $10 is spent on recordings each year. Inquiry revealed that money is set aside for music materials in the general music program which far exceed the present expenditure.

3. The suggestion was given to promote interest in the listening area of the music program through participation in the Music Memory program in the Valley. Studying eight fine recordings each year is culminated with a "live" concert in Phoenix, presented by the Arizona State University Symphony Orchestra. Inquiry revealed that bus transportation could be provided for this enriching experience. In addition, a fine correlation with the instrumental department could be developed.

4. Because of the demands which are made of the music teacher under current scheduling, it is recommended that the acquisition of recordings which accompany music texts would not only relieve the strain on the music teacher's voice throughout the day, but also provide enrichment to the singing.

5. The availability of the many fine music films and film-strips would increase interest and understanding in the music experiences.

6. The music teacher is to be commended on her attempts to correlate music with the language art program within the primary grades. With this apparent interest and understanding of the subject matter in grades 1-2-3, it is recommended that a cooperative music program with classroom teachers of these grade levels be instituted.

(a) A pre-school workshop would acquaint the classroom teachers with methods, materials and procedures whereby they could enrich the basic content subjects either as a culminating activity and/or an introduction to subject areas through music.
(b) The music teacher and classroom teachers' cooperative planning at the beginning of the school year could be re-enforced with a mid-year workshop, perhaps inviting a consultant in for this purpose.

7. With this possibility of the self-contained classroom scheduling with consultant help in grades 1-2-3, additional phonographs would be needed. A recommendation of one phonograph for two teachers to share would, if accepted, give the music program needed strength.

8. The following items should be purchased: (a) recordings to accompany music texts (complete sets for each two teachers to share in each grade level of first, second and third grades); (b) additional basal music texts so that each classroom in grades 2 and 3 are provided with one book per pupil; (c) additional rhythm instruments (for the use of enrichment to singing and rhythmic activities); (d) resonator bells and autoharps would provide classroom teachers with the needed equipment necessary to provide music activities during the classroom day.

9. A central library of good listening recordings with a check-out system for classroom teachers is recommended.

10. The Arizona State Music Guide should be reviewed in depth.

Instrumental music. Recommendations for any type program being evaluated generally fall into one of two categories: a recommendation for an improvement aspect or for a change of some nature.

In the case of making a recommendation for the Buckeye Elementary Instrumental program, it is difficult to make any recommendation for the improvement or change in an already excellent program. It is recommended however that consideration be given to the extension into a string program.

Liberty School

General music. In making recommendations for the improvement of the music program in the Liberty school, it was decided to make recommendations for two distinct plans, either of which may be followed as a program in itself, depending upon the circumstances.

RECOMMENDATIONS FOR IMPROVEMENT OF MUSIC INSTRUCTION IN THE LIBERTY SCHOOL

I. Grades 1, 2, 3, 4:

  A. Music textbook replacement is needed

    1. Grade 1 teachers need several supplementary texts
    2. Arizona State Music Guide lists suggestions

  B. A phonograph for each classroom:

    1. To insure the presence of a phonograph for the music teacher as well as the individual classroom teacher's use
    2. For the correlation of music with language arts, social studies and other content areas as an integral part of the classroom teacher's instructional program

  C. The purchase of suitable recordings for use in the music program is advised:

    1. Recordings to accompany the basal music text at each grade level to assist the experienced as well as the inexperienced teacher
    2. Recordings to enrich both the music program and the general classroom curriculum
    3. Arizona State Music Guide lists suggestions

  D. Miscellaneous instructional aids recommended for purchase

    1. Resonator bells, autoharp, rhythm instruments, pitch pipes
    2. Charts, pictures of instruments, films and film-strips to create interest
    3. Library of interesting music reference books, both for teachers and students.
    4. A cart for transporting music equipment, both by music teacher and classroom teachers
    5. A small movable piano for use of grades 1, 2, 3, 4

  E. In-service training

    1. Periodic meetings of music instructors to help formulate plans

for an over-all music program
2. Periodic meetings between classroom teachers and music instructors to cooperatively plan music experiences which will enrich classroom instruction

II. Grades 5, 6, 7, 8

A. Music textbook replacement is needed:

1. Suitable basal texts for grades 6, 7, 8
2. Selection of additional song material for grades 7 and 8
3. Arizona State Music Guide lists suggestions

B. A phonograph should be provided for each two rooms to share

1. Although music instruction is given in a central room, the availability of a phonograph would permit the classroom teachers to use music as an enrichment to the social studies.

C. The purchase of suitable recordings is advised for use in both the music program and for regular classroom enrichment

D. Miscellaneous instructional aids should be available in music room:

1. Resonator bells, autoharp, rhythm instruments
2. Pictures of instruments, composers
3. Books with musical interest for students (to be made available through library check-out)
4. Adequate bulletin boards for display of pertinent materials of a musical nature to increase interests

E. Under the present music instruction program, no recommendations can be given for an instrumental program except to suggest bringing in a qualified person to initiate and teach instruments

RECOMMENDATIONS FOR AN ALTERNATE PLAN FOR MUSIC INSTRUCTION IN THE LIBERTY SCHOOL

Grades 1 through 8 (Vocal and Instrumental):

A. Employ a music specialist who will be responsible for both instrumental and general music

B. Conduct a cooperative evaluation of existing facilities and equipment (participants: music specialist and members of the administration)

C. Cooperatively formulate a program of musical growth that includes instruction in both general and instrumental music.

Palo Verde School

General music. In light of the survey which was made, and considering improvements which could be made, the following recommendations are submitted:

1. It is recommended that consideration be given to purchasing textbook materials in music for grades 5-6-7-8 which are more suitable for the

continuance of the program in grades one through four. The Arizona State Music Guide may be used as a reference for suggestions.

2. Consideration should be given to the purchase of additional recordings for use by the classroom teachers to use in correlation with content subject matter.

3. Participation in the Music Memory program in the Valley was suggested. Inquiry revealed that interest was evident and that transportation could be provided for the "live" concert in Phoenix when the Arizona State University Symphony Orchestra presents the eight compositions which have been studied through the use of recordings.

4. Continuance of the present scheduling was found to be adequate in light of the present personnel. Consequently, no recommendation is offered at this time for the teaching of music in grades 1 and 4 by the music coordinator.

5. It is recommended that consideration be given to the sharing of personnel from another district who could initiate an instrumental program.

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PHYSICAL EDUCATION

Point of View

Physical education should be an integral part of the total education of the child. The program should contribute to the development of the individual's physical, mental, social and emotional needs through a variety of selected physical activities. A list of the major purposes of physical education includes the following:

1. Development of basic muscular strengths and the co-ordinations used in fundamental skills.

2. Development of correct postural habits and the ability to relax.

3. Development of mastery of physical powers, with the capacity for sustained effort through the exercise of the large muscles and vigorous play.

4. Development of body poise and creativity in motion through enjoyable rhythmical activities.

5. Development of sufficient skill in motor activities to provide pleasure and satisfaction.

6. Development of the individual's interest in maintaining his own optimum physical, mental, social, and emotional well-being.

7. Development of the individual's desire to appreciate and master worthwhile physical recreational skills.

8. Development of the social integration of each individual within the group through activities that give opportunity for satisfying experiences.

9. Development of emotional stability through frequent and vigorous participation in activities within the capacity of the individual to realize.

10. Development of desirable social attitudes inherent in group relationships, such as leadership and followership, subordination of the individual to the welfare of the group, generosity to opponents, tolerance toward playmates of different races or creeds or of different physical abilities.

11. Development of a sense of individual and group responsibility for civic behavior on the playground, in the school, and in the community.

12. Development of courage, initiative, alertness, self control, and cooperation in group activities or individual games.[1]

The literature in the field agrees that the needs and characteristics of children must govern what is offered in the program. The physiological and psychological needs of the various age groups of children have been well documented so that we know children are capable of and should accomplish these specific skills as listed for the various grade levels:

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[1] W. Van Hagen, G. Dexter, and J. Williams, Physical Education in the Elementary School (California State Department of Education, 1951) Sacramento, California.

Grades One, Two, and Three

Children should have acquired the following specific skills by the conclusion of the primary grades:

1. Catching and throwing, somewhat accurately, large balls and bean bags
2. Running to a given mark and back without stopping
3. Hopping on either foot
4. Skipping using both feet
5. Jumping using both feet
6. Walking successfully a low ledge, low ridge pole, or balance beam
7. Knowing the words, music, and action used when playing singing games
8. Performing simple stunts
9. Knowing how to walk, run, gallop, and skip to music
10. Knowing how to use climbing apparatus for climbing and low horizontal bars for rolling, rolling over, or for hanging

Grades Four, Five, and Six

1. Attaining and maintaining correct postures
2. Knowing how to play individual and dual games such as paddle tennis, handball, croquet
3. Catching, throwing, and batting small balls with accuracy
4. Handling large balls with increasing accuracy and greater speed
5. Controlling a soccer ball with the foor or feet
6. Chinning two or more times while grasping bar with back of hand toward face
7. Dancing polka, schottische, two-step, and waltz steps, together with several folk dance patterns based on those steps
8. Knowing how to secure a partner for a game and leaving her graciously at conclusion of activity
9. Knowing the rules of at least one organized game and being able to carry on the game without an adult leader
10. Knowing how to float and to use at least one swimming stroke successfully

Grades Seven and Eight

1. Understanding the principles controlling body mechanics; maintaining correct postural positions at all times

2. Swimming well enough to have confidence in deep water

3. Playing six or seven individual and dual games well enough to be accepted readily by other players

4. Knowing general rules and technical skills used when playing standard national games such as soccer, speed ball, softball, basketball, tennis, volleyball

5. Dancing basic steps used in social dancing such as the waltz, two-step, mazurka, schottische, polka, one-step

6. Dancing a given number of early American dance patterns

7. Dancing a given number of folk game patterns other than American

8. Directing several dual, individual, or team games without adult supervision

9. Contributing to the planning and executing of a social event for boys and girls of own age[2]

The physical education program like all other curriculum areas must be adapted to coincide with district philosophy and to meet the unique needs of the community. Some of the above mentioned activities are not presently possible in all school districts, however, it is well to take a look at the broad program as we look toward the future.

In order to help children attain the purposes and skills listed, it must be understood that the physical education period is an instructional period and not a free play recreational time. It must be conducted as any other instructional period with planning and evaluating. The interplay of personalities in this more informal phase of the curriculum gives valuable insight to the observing teacher. Perhaps the unique contribution that co-ed physical education makes is to the social adjustment of boys and girls as they learn to play together and to accept and understand their own differences. It does follow then that as we plan a strong instructional physical education program on a co-ed basis the need to group is included in the planning.

Ability grouping as certain skills are taught is essential if the class is to make satisfactory progress. This does not need to mean the separation of boys and girls but rather helping any child who needs special emphasis on that particular skill. Certainly the teams would need to have both highly skilled and average players to make the competition interesting. In schools that engage in interschool team competition it may be necessary to include days in the instructional program when the chosen teams of boys or girls practice together. This then becomes a part of the program but should not become the entire program.

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[2] Ibid.

Observations and Commendations

Arlington School

A real asset to the physical education program was the excellent indoor gymnasium and an adequate amount of equipment for the major sports played. Several staff members have strong physical education backgrounds and appeared to be willing to help up-grade the program.

Grades one through three remain co-ed and were taught by their own classroom teachers. Equipment on the primary playground included swings, slides, teetertotters, merry-go-round, climbing apparatus, and tether ball. Each teacher was responsible for her own program. Grades four through eight separated the boys and girls and the program consisted of softball, volleyball, track and badminton. Grouping was for the teams that play in the inter-school games. Teachers most skilled in physical education were scheduled to teach the groups of girls and boys physical education. Little or no rhythms were taught at any grade level. There was no planned program of physical education written down for any grade level - no scope and sequence.

A very adequate storage room was adjacent to the playing fields. Space for a few boys and girls to change clothes and shower was available.

Harquahala School

Grades one and two taught at this school had physical education under the direction of the classroom teachers. There was little or no play yard equipment and a limited supply of balls.

Buckeye Elementary District

The boys physical education program (grades 4 through 8) was under the direction of a specialist in physical education. The program consisted of activities in the major sports and a very extensive physical fitness program which included accurate and current records on every boy. This program was outlined and made available to the visiting consultants.

The girls physical education program (grades 4 through 8) was under the direction of two women teachers with strong backgrounds in physical education. The following grade levels were grouped for their physical education: 4th, 5th and 6th; and 7th and 8th. The aims, goals and suggested means of attaining goals, were outlined for each grade grouping. The program included: physical fitness; games of lower organization; individual games; team games; and rhythms.

The physical education program for grades one through three was left to the discretion of each teacher. There was no planned program. Some teachers traded so the boys and girls were separated. The primary playground had (3) swings; (1) slide; (1) horizontal ladder; (1) jungle jim, and (1) climbing ladder. There was no planned rhythms program.

Liberty School

A real asset to the physical education program was the excellent indoor gymnasium and an adequate amount of equipment for the major sports played.

Grades one through three were supervised by their own classroom teachers. Their program consisted of supervised play on the primary play area. Equipment on the primary play area included: six tetherballs, one merry-go-round, two swing sets, and two climbing apparatus. In grades four through eight the boys and girls were separated and the program consisted of the major sports that are played in inter-school competition. Grouping was for the teams that played in the inter-school games. Teachers most skilled in physical education were scheduled to teach the groups of girls and boys physical education in the upper grades. Little or no rhythms were taught at any grade level. There was no planned program of physical education written down for any grade level.

A very adequate storage room was adjacent to the playing fields.

Palo Verde School

The primary playyard was in front of the school, which was well fenced. The immediate impression was that there was concern for and understanding of the need for creative play for young children. The yard was filled with various types of apparatus that could be climbed on, over and under. It also included the usual swings, slide and merry-go-round.

The upper grade fields were well fenced and maintained and each area had an equipment box adjacent to it. There was every evidence of careful planning for the sports program to run smoothly.

Courts and areas are also provided for shuffleboard, badminton, and ping pong.

The indoor gymnasium was another asset; clean, well lighted and well kept. Dressing rooms for a few boys and girls to change clothes were included in the gym area. These were used during the inter-school games.

Several pianos were available at various grade levels for rhythms and music. Record players and some records were available for the primary grade rhythms.

Grades one, two and three were taught by the classroom teachers. The teachers were encouraged to introduce one new game a week.

Grades four through eight were taught by special teachers and the girls and boys separated. The sports taught were flag football, soccer, basketball, softball, baseball (boys only) and track. The gym was shared equally through the year by the boys and girls.

Conclusions and Recommendations

Arlington School

1. The program needs to be broadened to include a greater variety of activities. (See Supplement E)

2. The program and goals for each grade level need to be written down.

This might best be accomplished by a teacher committee guided by the several people on the staff with strong backgrounds in physical education.

3. The classroom teachers should be encouraged to teach their own classes in physical education at least through sixth grade.

4. In-service workshops for teachers should be provided. They should include: ways of teaching and testing skills at the various grade levels; use of audio-visual aids; a rhythm program for the primary grades. Perhaps some of the present staff could conduct these or consultant help could be requested.

5. A reference library in elementary school physical education should be provided for the staff. (See Bibliography.)

6. Record player and records should be provided for the primary grade rhythms program.

7. The existing equipment should be organized and a running inventory established. Replacements and repairs need to be anticipated and kept current. One teacher with trained seventh or eighth grade boys to help could be given this responsibility. The central storage area provides more equipment for all teachers but it must be maintained in good repair.

8. As the budget permits apparatus should be added to the primary play area including: horizontal bars, 48" to 54" high, and a horizontal ladder, 5' high.

9. An apparatus area for fourth through eighth graders could be very useful. It should include: horizontal bars, 60" - 66", horizontal ladder, 6½' high, climbing ropes, hemp or manila, 1½" diameter.

10. An effort should be made to provide facilities for the seventh and eighth grade boys and girls to change clothes for physical education. A minimum would be to insist on tennis shoes or oxfords and some type clothing that would permit freedom of movement.

Harquahala School

1. A program of physical education for these grades needs to be established and written down.

2. Equipment for the play yard and execution of the program needs to be provided.

3. Records should be purchased for a primary rhythms program.

4. Resource books should be made available to the teachers. (See Bibliography)

Buckeye Elementary District

1. The girls program for grades 4 through 8 seemed varied and well conducted.

2. The boys program for grades 4 through 8 should be more varied. The fitness and major sport program is very effective but should be supplemented with individual and dual games, apparatus, stunts and tumbling and rhythms. (See Supplement)

3. A physical education committee should be appointed to evaluate the present program. The committee should be guided by those teachers on the staff that have strong physical education backgrounds. It would seem that by adding variety to the boys program more co-ed activities could be planned thus giving better balance to the entire program.

4. The program and goals for the primary grades need to be written down. The above mentioned committee should be able to assist in this planning. (See Supplement E)

5. A reference library in elementary school physical education should be provided for the staff. Since the primary grades are on a separate site it would be well to provide a separate set of references for them at the primary school site. (See Bibliography)

6. Record players and records should be provided for the primary rhythms program.

7. An apparatus area for fourth through eighth graders could be very useful. It should include: horizontal bars, 60" - 66", horizontal ladder, 6½' high, climbing ropes, hemp or manila, 1½" in diameter.

8. An effort should be made to make space available for the seventh and eighth grade boys and girls to change clothes for physical education. A minimum would be to insist on tennis shoes or oxfords and some type clothing that would permit freedom of movement.

Liberty School

1. The program needs to be broadened to include a greater variety of activities. (See Supplement E)

2. The program and goals for each grade level need to be written down. This might be best accomplished by a teacher committee guided by the several people on the staff with strong backgrounds in physical education and the assistance of a consultant if possible.

3. In-service workshops for teachers should be provided. They should include: ways of teaching and testing skills at the various grade levels; use of audio-visual aids; a rhythm program for the primary grades. Present staff may conduct these or consultant help could be requested.

4. A reference library in elementary school physical education should be provided for the staff. (See Bibliography)

5. Record player and records should be provided for the primary grade rhythms program.

6. The existing equipment should be organized and a running inventory established. Replacements and repairs need to be anticipated and kept current.

One teacher with trained seventh or eighth grade boys to help could be given this responsibility. The central storage area provides more equipment for all teachers but it must be maintained in good repair.

7. As the budget permits apparatus should be added to the primary play area including: horizontal bars, 48" to 54" high and a horizontal ladder, 5' high.

8. An apparatus area for fourth through eighth graders could be very useful. It should include: horizontal bars, 60" - 66", horizontal ladder, 6½' high, climbing ropes, hemp or manila, 1½" diameter.

9. An effort should be made to make space available for the seventh and eighth grade boys and girls to change clothes for physical education. A minimum would be to insist on tennis shoes or oxfords and some type clothing that would permit freedom of movement.

Palo Verde School

1. The program and goals for each grade level need to be written down. This might be best accomplished by a teacher committee guided by the several people on the staff with strong backgrounds in physical education and the assistance of a consultant if possible.

2. The program needs to be broadened to include a greater variety of activities. (See Supplement E)

3. A reference library in elementary school physical education should be provided for staff use. (See Bibliography.)

4. In-service workshops should be provided. They should include: ways of teaching and testing skills at the various grade levels; use of audio-visual aids; and rhythms for the primary grades. Consultant help would be advisable.

5. A record library for primary rhythms should be established.

6. An effort should be made to make space available for the seventh and eighth grade boys and girls to change clothes for physical education. A bare minimum would be to insist on tennis shoes or oxfords and some type clothing that would permit freedom of movement.

7. An apparatus area for fourth through eighth graders could be very useful. It should include: horizontal bars, 60" - 66", horizontal ladder, 6½' high, climbing ropes, hemp or manila, 1½" diameter.

General Recommendations-For All Schools

1. There seemed to be a mutual need in all the schools to broaden the program. (See Supplement E)

2. All of the schools had strong points in their programs that might be shared with other schools.

3. All of the schools had some staff with strong physical education

backgrounds.

4. All of the schools could use some consultant help in broadening the programs.

5. Inter-school meetings of the various schools' physical education teachers to share ideas, problems and solutions should also prove beneficial. These people with the aid of a consultant could plan and help execute the various in-service workshops needed by all the districts.

SUPPLEMENT E

EXAMPLES OF ACTIVITIES SUITABLE FOR PRIMARY GRADES

TYPE OF ACTIVITY	NAME OF ACTIVITY	REMARKS
Tag Games	Squirrels in Trees	Rapidly moving game played in a circle in groups of three
	Back to Back	Players get partners by hooking elbows
	Flying Dutchman	Running game played in a circle by couples
Ball Games	Beanbag Throwing for Distance	Practice in overhand throwing
	Ring Call Ball	Practice in tossing and catching
	Kick Ball	Team game, involving skills of softball and soccer
Games Played in Classroom	Chase the Animals Around the Corral	Circle game, with practice in object handling
	Numbers Exchange	A semiactive tag game
	The Ocean is Stormy	Involves seat exchange
Relays (Grade 3)	Across the Room	Played in classroom; semiactive
	Stoop and Stretch	Involves body exercise
Stunts (no mat needed)	Fourfooted Walk	Involves body exercise to develop arm strength
	Climb Through the Stick	Develops body flexibility
	Jumping	Develops leg power and technique of landing
	Deep Squat	Develops leg power and balance
Play on Apparatus	Climbing on Apparatus	Develops shoulder muscles and flexibility
	Hang and Drop	Develops arm strength and body balance in landing
	Horizontal Ladder Travel	Develops arm strength and body control
Rhythms	Free Rhythms	Includes skipping, running, hopping
	Identification Rhythms	Pupils represent animals, people, things
	Dramatization Rhythms	Creativity from songs, poems, events

(Continued)

Type of Activity	Name of Activity	Remarks
Singing Games and Simple Folk Dances	Looby Loo	Circle game involving singing and pantomime
	A-Hunting We Will Go	A singing line game involving sliding and running
	Cshebogar	A partner circle dance involving skipping and turning
Body Mechanics	Climbing on Apparatus	Develops body strength and flexibility
	Walking Line or Balance Board	Develops good foot posture
	Standing Against Wall	Develops good body posture and balance

EXAMPLES OF ACTIVITIES SUITABLE FOR INTERMEDIATE GRADES

TYPE OF ACTIVITY	NAME OF ACTIVITY	REMARKS
Tag Games	Link Tag	Involves running, co-ordination
	Last Couple Out	Couple formation involving running, dodging
	Club Snatch	Involves running and balancing
Simple Lead-up Games	End Ball	A team game involving throwing
	Hit Pin Baseball	A team game of the softball type involving kicking
	Indian Ball	Involves batting and fielding
Team Games	Long Ball	Involves batting
	Softball	Official game with boys and girls using identical rules
	Nine-Court Basketball	Basketball rules used; game involves guarding, shooting baskets
Individual Games	Pateca	Can be played anywhere; equipment can be purchased or made
	Volley Tether Ball	Played with hands; large ball on a pole
	Paddle Ball	Played against backboard with tennis strokes
	Paddle Tennis	Played on small, surfaced court with tennis strokes
Relays	Toss Over Relay	Involves ball handling
	Shuttle Relays	Involves running
	Skip Rope Relays	Involves skipping

(Continued)

Type of Activity	Name of Activity	Remarks
Games Played in Classroom	Poison Seat	A semiactive game
	Screwylouie	A volleyball type game played with a balloon or ball bladder
	Bowling at Indian Clubs	An accuracy game using a softball
Stunts and Tumbling (No mat needed)	Frog Hand Stand or Tip Up	Involves body balance on hands
	Cart Wheel	Develops co-ordination
	Elephant Walk	A stunt for two
Apparatus Play	Skin the Cat	Develops strength and flexibility on bar
	Horizontal Bar Walk	Develops balance and co-ordination
	Travel on Rings or Giant Stride	Develops arm strength
Rhythms	Free Rhythms	Involves basic motor skills
	Identification Rhythms	Usually connected with ideas concerning animals, peoples, and things
	Dramatization Rhythms	Highest form of creative rhythmical expression from everyday and classroom experiences. When repeated to a set pattern a dance is created
Folk Dances	Bleking	A circle dance of couples involving hopping and turning
	Paw Paw Patch	A line dance of couples involving singing
	Ace of Diamonds	A dance in which couples polka
	Varsovienne	A dance of couples; varsovienne step
	Captain Jinks	A square dance with easy calls and steps
Social Dancing	Two-step	A couple dance; step-together-step
	Schottische	A couple dance involving step, step; step, hop
	Waltz	A couple dance; step, step, together
	Polka	A couple dance; step, together, step, hop
Body Mechanics	Dodging, Stopping and Starting	Involves balance of body weight; use of feet
	Pull-ups	Aids body alignment; develops shoulder girdle strength

(Continued)

Type of Activity	Name of Activity	Remarks
	Class posture check	Teaches children what good posture is; suggestions may be made for better posture

EXAMPLES OF ACTIVITIES SUITABLE FOR UPPER GRADES

TYPE OF ACTIVITY	NAME OF ACTIVITY	REMARKS
Lead-up Games	Football Lead-up Games	Football skills are taught in game situations
	Knock-Out or Freeze-Out	Basketball type of game involving shooting baskets and backboard recovery
	Basket Speed Ball	Speed ball type of game; soccerbasketball review
	Volley Tennis	Volleyball type of game
Team Sports	Basketball	Separate game for boys and girls; use official rules and adapted equipment
	Soccer	Separate game for boys and girls; use official rules and adapted equipment
	Touch Football	A two-hand touch game for boys; on a fumble the ball is dead
	Volleyball	A separate game for boys and girls; use official rules; or mixed recreational game
Individual and Dual Games	Horseshoe Pitching	For boys and girls; use official rules and adapted equipment
	Tennis	For boys and girls; use official rules
	Deck Tennis	Semiactive game for boys & girls
	Shuffleboard	Semiactive game for boys & girls
	Badminton	For boys and girls; use official rules
Relays	Obstacle Relay	Involves dodging
	Jack Rabbit Relay	Involves vigorous exercise; jumping
Games Played in Classroom	Progressive End Ball	Involves throwing at moving target
	Poison Snake	A semiactive game
Stunts and Tumbling	Corkscrew	Develops flexibility
	Chest Stand	Couple stunt; develops body balance

(Continued)

Type of Activity	Name of Activity	Remarks
Self-testing Activities	Dashes	Develop endurance
	Distance Throws	Develop strength and co-ordination
	Jumps	Standing jump; running jump; high jump
Rhythms	Dramatizations	Based on ideas, ideals, or emotions
Folk Dances	Waves of Tory	A line dance with square dance steps
	Swing the Man from Arkansas	A square dance
	California Schottische	A progressive dance with couples
	La Raspa	A couple dance, with Bleking step
Social Activities for the Classroom	Labyrinth Tag	Group tag; suitable for small space
	Table Tennis	For boys and girls; official rules
	Rye Waltz	A couple dance; waltz, slide
	School Bowling	Equipment can be made or purchased
	Hello-Goodbye	A double circle mixer
Body Mechanics	Running Posture	Teacher and pupil should check on form
	Skills for Work	Raising windows; picking up objects; lifting; pushing
	Sitting and Standing Posture	Pupil and teacher check on form to correct faulty habits

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HEALTH EDUCATION

Point of View

The major purpose of an elementary school health education program is to improve and maintain the health of the school-age child.

Health teaching areas should include safety education, nutrition, personal health, rest, sleep, exercise, posture, fitness, and community health.[3]

The health education program must be adapted to meet the unique needs of each school. The school nurse is best acquainted with these needs and should therefore be a key person in helping to outline the health education program.

The program of health instruction should include, but not be limited to, the study of:

1. How health and growth takes place and factors that influence them, including food values, and harmful drugs.

2. The importance of sleep, rest, and relaxation to the maintenance of good health.

3. Active participation in social activities designed to develop and maintain emotional well being and mental health.

4. Safety in the home, school, and community.

5. Personal cleanliness (hygiene) and good grooming.

6. Any other factors conducive to the promotion of good mental, physical and/or emotional health.

Observations and Commendations

Arlington School

The nurse was very interested in providing any help she could to make the health education program more effective. Through the health service program (see Health Services Point of View) the nurse makes an important contribution to the health education program.

Each teacher was responsible for the health education in her own room. There was a health education text for each grade level. The nurse provided consultant help for the teachers as requested.

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[3] H. Clarke and F. Haar, Health and Physical Education for the Elementary School Classroom Teacher (Prentice-Hall, Inc., 1964) Englewood Cliffs, New Jersey.

Harquahala School

The individual teachers were responsible for their own health program. Health texts were available. The nurse was very willing to help with the health education program.

Buckeye Elementary District

The nurses were very interested in providing any help they could to make the health education program more effective. Through the health service program (see Health Services Point of View) the nurses make an important contribution to the health education program.

There was a health education text for each grade level. Each teacher was responsible for the health education of his class, except the seventh and eighth graders who had a special teacher.

Liberty School

The nurse was very interested in providing any help she could to make the health education program more effective. Through the health service program (see Health Services Point of View) the nurse makes an important contribution to the health education program.

Each teacher was responsible for the health education in her own room. There was a health education text for each grade level. The nurse provided consultant help for the teachers as requested.

Palo Verde School

There was no formal health education program. The administration requested suggestions be made pertaining to initiating a health education program.

There is no school nurse to serve as a resource person for the staff.

Conclusions and Recommendations

Arlington School

1. The nurse can best appraise the health education needs of the students and should play an important role in the total health education program of the school.

2. The health education goals for each grade level should be written down and a list of suggested teaching units established. This could best be accomplished by the nurse serving as a consultant to a committee of teachers interested in developing such an outline.

3. The health services should be used as a basis for the health education program.

4. The health education text should be used to supplement the planned health education units.

5. The nurse should be used as a resource person for the staff but should not be expected to teach the classes in health education.

Harquahala School

1. A health education program should be designed for each grade level and written down.

2. The nurse should be used as a resource person.

Buckeye Elementary District

1. The nurse can best appraise the health education needs of the students and should play an important role in the total health education program of the school.

2. The health education goals for each grade level should be written down and a list of suggested teaching units established. This could best be accomplished by the nurses working with a committee of teachers interested in developing such an outline.

3. The health services should be used as a basis for the health education program.

4. The health education text should be used to supplement the planned health education units.

5. The nurses should be used as resource persons for the staff but should not be expected to teach the classes.

Liberty School

1. The nurse can best appraise the health education needs of the students and should play an important role in the total health education program of the school.

2. The health education goals for each grade level should be written down and a list of suggested teaching units established. This could best be accomplished by the nurse working with a committee of teachers interested in developing such an outline.

3. The health services should be used as a basis for the health education program.

4. The health education text should be used to supplement the planned health education units.

5. The nurse should be used as a resource person for the staff but should not be expected to teach the classes in health education.

Palo Verde School

1. Since the district had no school nurse it is of utmost importance that health education be taught in the classrooms.

2. A series of teaching units should be established for each grade level. Until a school nurse can be hired perhaps the County Health Nurse could serve as a consultant to assist in establishing the teaching units. She could also suggest free materials available for use in teaching the units.

3. An in-service program should be provided for all teachers. Special consultants would be of great value in such a program.

4. Teachers should be made aware of the health services being offered the students so background and understanding of these services can be taught in the classroom. Above all, classroom teachers should actively participate in the in-service program.

5. A committee of teachers should be appointed to review available health education texts. If one is found that seems to meet the needs of the school a recommendation should be made to the superintendent to purchase a set.

General Recommendations-For All Schools

1. All the districts need to outline a series of health education units for the various grade levels.

2. All the districts have unique but at the same time similar health education needs.

3. Several districts have nurses very much interested in expanding the health education programs.

4. Inter-school meetings of nurses and interested teachers could help each district get started on a general plan for health education. Pooling of ideas could develop general guidelines which each district could then use for developing their own detailed programs.

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HOME ECONOMICS

Point of View

Changes in society which affect the American home should be considered in providing an effective home economics program in the schools today. Some of these changes are: the increase in the number of women working outside of the home; the large number of teen-age marriages and teen-age mothers; the increase in the divorce rate; the change from a production to consumption family; the large expenditure of money by teen-agers and the mobility of the family.

Due to these and other changes affecting families, one emphasis in the home economics program today is helping students develop good management practices. Statistics from the Women's Bureau tell us that these girls can expect to work twenty-five years of their lives. One out of three mothers of children under 18 years of age is working outside her own home. One out of three persons in the labor force by 1970 will be a woman.[4] Therefore, many women will have the dual role of a homemaker and wage-earner. They will need to be good managers in order to bring satisfaction to themselves, their families and their employers. The principles of management need to be emphasized early in the home economics program with guided opportunities for developing desirable management practices in the classroom and in the home. The latter can be done through supervised home practice.

A second emphasis in the home economics program is closely related to the first and could be considered a part of it. This has to do with guiding students in the wise use of their money. An effective home economics program provides excellent opportunities for developing this ability in students through the purchase of food, supplies, equipment, yard goods and ready-made garments used in the program, as well as cosmetics, movies, musical records and other goods and services purchased by seventh and eighth grade students.

Another emphasis in the home economics program in the 1960's is further understanding of the concept of the development of the young child. Since many girls have young sisters and brothers in their homes and a large number of them do baby sitting to earn money, they are interested in the growth and guidance of children. Through a better understanding of small children, they also learn to better understand themselves and others.

This leads us to a fourth emphasis in the program, that of personal and family relationships. Seventh graders especially are interested in helping in the home, and both seventh and eighth grade girls are interested in personal care and grooming, personality development and social relationships.

Emphases on these important phases of the program leaves less time than in the past for the development of such skills as sewing and cooking. However, the skills needed in these phases of the program can be developed in less time when students are guided to think for themselves, solve problems, apply principles, and get satisfaction from work well done.

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[4] United States Department of Labor, Women's Bureau, Day Care of Children Under Twelve. (Washington, D.C.: U.S. Government Printing Office, October 1960), p. 1.

With the foregoing trends along with the characteristics and developmental tasks of the early adolescent and functions of the elementary school in mind, the home economics programs in the four schools were studied.

Observations and Commendations

Arlington School

1. Space was adequate.

2. All eighth grade girls took home economics for 1½ hours twice per week for 6 weeks during first semester.

3. All seventh grade girls took home economics for 1½ hours twice per week for 6 weeks during second semester.

4. The program was primarily devoted to developing skills in sewing and cooking.

5. One grade teacher had the sewing classes, another grade teacher had the cooking classes. Neither teacher had had any courses in home economics.

6. When the consultant observed during the visitation, the girls were sewing on garments that were quite difficult for this age group.

7. The teacher was doing her best with the information she had on the subject.

8. A conference was held with the instructor who teaches cooking. She was attempting to include some work in other phases of home economics.

9. Teachers are to be commended for their hard work in trying to teach classes for which they have had no special training.

Buckeye Elementary School

1. Seventh and eighth grade classes met 120 minutes daily for a semester. This is a good arrangement.

2. The program included some work in management, consumer buying, personal care and grooming, child development, personal and family relationships as well as food and clothing.

3. A well arranged file of materials was used by the teacher and pupils.

4. Other teaching aids, such as films and bulletins, were available.

5. Good rapport existed between the teacher and pupils.

6. Girls received excellent experiences in buying when two girls went shopping for groceries with the teacher each time groceries were purchased.

7. More advanced work was being offered in some phases than is usually included in the seventh and eighth grade program.

8. Adequate space and equipment were provided for the program.

9. The department was neat and clean.

10. The cabinets as observed were inadequate for home economics purposes.

11. The kitchen tables and chairs were attractive.

12. The administration is to be commended for providing a desirable schedule for home economics classes, a budget on which to operate, and adequate space and equipment for the program.

13. The teacher is to be commended for her untiring efforts in trying to provide a satisfactory program even though her major field was not in home economics.

14. Classes were sufficiently small to permit a great deal of individual help from the teacher.

15. Capable resource people such as the home economist with Arizona Public Service were used to help enrich the program.

Liberty School

1. A small space, four sewing machines and some benches were provided for a sewing class.

2. Seventh and eighth grade classes met one hour once per week.

3. There were two seventh and two eighth grade classes in home economics.

4. The second grade teacher conducted the sewing classes after 2:00 p.m. on Monday, Tuesday and Wednesday.

5. The teacher expressed her feeling of inadequacy in trying to teach something for which she has had no special training. However, she was working very hard at trying to get new ideas and materials for the program.

6. The rapport between teacher and pupils was excellent.

Palo Verde School

There was no home economics program at Palo Verde.

Conclusions and Recommendations

Arlington School

1. Some new books have been written for seventh and eighth graders. It is recommended that additional books be purchased so the teachers can broaden the program through their use.

NOTE: A list of recommended books has been sent to teachers; a copy of the list may be found in this report.

2. Since the teachers have had no courses in home economics, it is recommended that they take courses in home economics curriculum, and methods of teaching home economics, during summer sessions.

3. Students often get discouraged and lose interest in a long-time project; therefore, it is recommended that home economics be offered daily for one semester for seventh grade, and daily for one semester for eighth grade.

4. Until the school is large enough to employ a full-time home economics teacher, it is recommended that a teacher be employed with two majors--one in elementary education and one in home economics. The home economics classes could meet at the same time they are now meeting. Another alternative might be to employ a home economics teacher in cooperation with another school district.

Buckeye Elementary School

1. Suitable home economics reference books were not available to students; therefore, it is recommended that a supply of suitable books be purchased.

NOTE: A list of recommended books is being sent to the teacher; a copy of the list may be found in the Bibliography at the end of this section.

2. Inasmuch as the cabinets which were installed in the kitchens are inadequate, it is recommended that some shelves be placed in the cabinets to make them more usable for home economics classes.

3. Home economics is constantly changing to meet the present and future needs of individuals and families. Therefore, it is recommended that a teacher with a home economics major be employed when the present teacher retires.

Liberty School

1. Since facilities are not available for teaching a broad, comprehensive program, it is recommended that the room be further equipped for teaching clothing design and construction and related areas.

2. The teacher was interested in enriching the present program. It is therefore recommended that some books be purchased for reference material. (See the list at the end of this section.)

3. Until the school is large enough to employ a full-time home economics teacher, it is recommended that a teacher be employed with two majors--one in elementary education and one in home economics. The home economics classes could meet at the same time they are now meeting. Another alternative might be to employ a home economics teacher jointly in cooperation with another school district.

Palo Verde School

It is recommended that the district consider the possibility of cooperating with another school district in providing a Home Economics program.

General Recommendations-For All Schools

It is recommended that:

1. Teachers of the home economics classes in these elementary schools meet regularly together to share ideas.

2. Teachers in these schools meet with high school home economics teachers to coordinate the program and plan a sequence of learnings at different grade levels.

3. Teachers attend the district curriculum meetings for home economics teachers held in January and February.

4. A comprehensive home economics program with some work in all phases of home economics be offered, since many girls will either not enter high school or will not complete high school and will marry in a few years.

5. Teachers with majors in home economics be employed in the future.

6. Schools pool their resources and cooperatively employ a qualified home economics teacher.

7. Home economics be offered in all schools daily for one semester for both seventh and eighth grades.

8. Since the program needs to be planned in terms of a sequence of learnings, it is recommended that elementary teachers meet with high school teachers to coordinate the program.

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INDUSTRIAL ARTS

Point of View

All pupils should have experiences which stimulate and encourage them to develop their talents and interests. Opportunities must be provided for creative expression and problem solving experiences *as individuals as well as* through *group* activity and class assignments. *The overall program should be flexible, comprehensive and organized.*

Industrial arts is that important phase of general education concerned with the materials, processes and products of manufacture, and with the contributions of those engaged in industry. The learnings come through the pupil's experiences with tools and materials and through the study of resultant conditions of life.

As general education, the objectives of the industrial arts teachers are not essentially different from those of other subjects or areas.

If properly conceived and taught, industrial arts instruction should greatly facilitate the development of:

Self-Understanding
Enrichment of other Subjects
Improved school morale
Understanding of Environment
Industrious work habits
Increased resourcefulness
Creativity
Avocational interests
Problem solving abilities
Accuracy and Orderliness
Respect for Property
Co-operative Attitudes
Consumer appreciation
Appreciations of an Industrial Society
Elementary and limited skills and technical information
A safety consciousness

These and other outcomes which could be listed should *not* be thought of as vague or remote educational "hopes" or ideals. To the contrary, realization of these outcomes may be achieved through the means of a *planned* major framework of *scope* and *sequence* for industrial arts instruction in grades six, seven and eight. Important to the development of this curriculum framework for the three grade levels are the considerations of mental and physical maturation, sex differences, individual differences, as well as the numerous limitations unique to a given school or school system (facilities, scheduling, etc.).

In general, the successful framework for upper elementary grade levels in industrial arts instruction is one which endorses the points of view expressed above and attempts to implement this philosophy through the means of the comprehensive general shop approach. This is essentially a multiple activities approach guided by one teacher. More specifically, the shop or laboratory is equipped and arranged for the presentation of units of instruction in several industrial arts subjects or media. Typically, these media include metals, woods, crafts, electricity, drawing and graphic arts. Because of the variety and nature of the multiple activities approach, it is essential that the teacher prepare and make use of written instruction sheets in the forms of:

1. Activity assignment sheets

2. Operation sheets

3. Information sheets

Their use together with group demonstrations and individual follow-up demonstrations provide the basic teaching framework. Regardless of the media, emphasis should be upon planning, drawing, designing (including creative opportunities), testing, experimenting, problem solving, research, reporting, evaluating and constructing or repairing projects.

Observations and Commendations

Arlington School

At the time of the survey, the instruction in industrial arts was being attempted in facilities constructed of frame and sheet metal obviously designed for storage of materials related to the garage for the school buses. These very limited facilities were shared by maintenance and custodial personnel as were all existing tools and equipment.

Industrial arts instruction was scheduled for grades seven and eight for one-half of each year, respectively, for two days weekly (Tuesday and Thursday) for a period of 90 minutes. Class sizes were approximately 15 to 18 students. The instructional media have been limited to woods.

The limitations of the facilities and consequently of the program were so numerous that no constructive end would be served by voluminously listing them.

The obvious enthusiasm of the youngsters and the continued efforts of the teacher were not only exceptional, but most commendable under the circumstances.

That the need for instruction in industrial arts was recognized by the administration and that early efforts to establish a program were made is also worthy of commendation.

Buckeye Elementary School

The industrial arts facilities are well located, have adequate space and are excellently supplied with natural lighting. The new drafting room which serves also as the classroom area is most attractive in appearance, and is well equipped. The "L" shape of the basic shops presents some problems of teacher supervision.

Equipment, while limited to woodworking, is quite varied and very well maintained. Safety operating areas were not marked, but a good safety instruction program was evidenced.

Industrial arts instruction was required of all seventh and eighth grade boys. The eighth grade was taught for the first semester only each year, and the seventh grade taught during the second semester only. The schedule for each grade level involved meeting four days per week for a double period of 80 minutes duration.

Half of the semester or nine weeks was devoted to mechanical drawing for the seventh grade, with the remaining half being devoted to woodworking instruction. The pattern for the eighth grade required six weeks of drawing and twelve weeks of woodworking. Class sizes included approximately eighteen students which made for ideal instructional efficiency in an activity type of instructional program.

It is commendable that textbooks and reference materials were required, available, and were used daily.

There was abundant evidence that great consideration was given by the instructor to details of organization, good housekeeping and management. Student and teacher interest and rapport was obviously high, and it is commendable that the instructor had met with approximately 30 students on several Saturdays in order to complete projects intended as Christmas gifts.

Project work in woodworking was typically extensive requiring most of the allotted woodworking time of the semester (either 9 or 12 weeks) to complete. Standards of workmanship were high, but in general the type of work observed would perhaps be more appropriate at the senior high school level.

In summary, there is much that is highly commendable relative to the industrial arts program. It has obviously made great progress in its growth and development, and possesses great potential for the new directions now appropriate in order to fulfill its exploratory function in general education.

Liberty School

The Liberty School has grown in student population to a point where two seventh grade home-rooms and two eighth grade home-rooms now exist. It is commendable that there has been a recognition of the fact that this growth places the program on the threshold of enabling certain needs to be met which were not possible when the school was smaller. To these ends a limited shop facility has been developed and limited program developed. One hour per week was scheduled for each of the four classes of the seventh and eighth grades. Instruction was handled by the respective home-room teachers. Some activities which are customarily considered industrial arts instructional experiences were taught in the home-rooms themselves. These were, in general, those activities related to consumer education and sketching.

The teachers of the upper grades are to be commended for recognizing the need for industrial arts experiences, and for their efforts to meet these needs under the somewhat difficult circumstances posed by a transitional period in size, program schedule, and limited facilities.

Conclusions and Recommendations

Arlington School

It is understood that preliminary plans have been approved for a new industrial arts facility which will be constructed very shortly. Accordingly, recommendations are set forth as a means of assisting the industrial arts program in the interim period, as well as recommendations directed toward program development in the projected new facility.

It is recommended that regular joint planning sessions involving the industrial arts teacher and the principal be scheduled. Such sessions should prove stimulating and fruitful to both individuals concerned, as well as beneficial to the further development of the industrial arts program.

These joint efforts should be directed to the following in approximately the order of priority listed:

1. Consider the present facility and program as being interim only, and give major efforts toward planning the future program and facility.

2. While the program has a record of safety, there are certain imperatives that relate to safety. It is recommended that "Teacher Liability in School-Shop Accidents" (See Supplement F) to be jointly reviewed and its many helpful criteria applied to the present facilities.

3. Give attention to efforts to maximize available space and facilities at present by (1) re-arrangement, (2) discarding much that is located in and about the garage area, and (3) fixing responsibility for inventory of tools, as well as for the maintenance of equipment and storage supervision.

4. Major joint effort should be devoted to the development of a written plan of the scope and sequence of experiences in industrial arts instruction for the sixth, seventh, and eighth grade levels. The general shop or multiple activities approach should be the bases for planning and direction.[5]

Strong consideration and extensive exploration of the possibilities for co-operation between schools and/or school districts to provide more adequate industrial arts instruction is urged. It is recommended that serious consideration be given to cooperative planning and programing which would provide adequate and qualitative industrial arts instruction for the students of Arlington School, Liberty School, and Palo Verde School.

The solution would obviously bear heavily on the program scope and sequence developed, as well as upon subsequent plant and equipment decisions, and, therefore, warrants early and serious exploration.

5. While at present a tentative architect's plan view sketch of proposed facilities is "in hand", it has apparently not evolved from, or been related to, any of the educational needs or considerations indicated above. Accordingly, it is recommended that upon completion of the studies and considerations indicated, that a detailed analysis of the physical space requirements as related to enrollment, program, equipment and instructional materials be made. This should enable the finalizing of a building plan which is as adequate as possible within the financial means available.

Buckeye Elementary School

The following recommendations are set forth as a means of indicating new or more appropriate directions now that initial progress has been attained:

1. The single most important recommendation pertains to broadening the base of industrial arts experiences. Please refer to the opening paragraphs

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[5] The Department of Industrial Arts Education of Arizona State University would be pleased to be of assistance in this area, as well as in facility planning.

entitled "Point of View" with special reference to the paragraph regarding implementation of Industrial Arts Junior High Philosophy through the means of the Comprehensive General Shop Approach. (See attached selected Bibliography relating to "General Shop")

2. It is recommended that the principal and industrial arts teacher jointly explore the literature regarding multiple activities at the junior high school level, and that arrangements be made to visit at least five or six of the better Comprehensive General Shops in the Phoenix area schools.

3. A plan to diversify the industrial arts program should be developed which would enable the orderly and regular introduction of other media. This will probably require a span of several years.

4. A written plan of scope and sequence of curriculum experiences should be developed, together with required equipment and instructional materials.

5. With this written plan and the tentative equipment analysis, a facilities planning study, in order to reorganize existing unit shop into a general shop, should be undertaken. Consideration should be given to vertical lumber storage instead of the large space now occupied by horizontal racks. Some means of dust control should be developed.

6. Discussion with appropriate officials of Buckeye Union High School relating to articulation in industrial arts courses would be mutually beneficial in terms of the over-all program provided youngsters of the community.

7. While working toward the goals outlined, it is recommended that some group activities (mass production) or group project techniques be incorporated in the instruction. (See attached ditto sheet of Selected Bibliography, "Mass Production and Group Project Techniques")

8. The need for a modern guard (Brett Saw guard recommended) for the table saw should be given attention. Safety tests should be required of students and the written tests themselves filed as evidence of fulfillment of teacher instructional responsibility.

Liberty School

1. It is recommended that the superintendent be encouraged to explore with the administration of Arlington School the possibilities for sharing the services of a full-time industrial arts teacher. (Timing may be most opportune; see the Arlington section of this Industrial Arts Report)

2. It is suggested that such initial efforts, insofar as Liberty School is concerned, center upon securing a schedule of industrial arts instruction which initially would provide at least a double period twice weekly for boys in the seventh and eighth grades.

3. Commensurate with this allotted time, a written plan of scope and sequence of experiences for each of these levels should be developed including also the equipment and other instructional materials required.

4. It is further recommended that some priority be given to the assignment of more adequate building space for the long range development of a general shop as total building plans permit.

Palo Verde School

Although Palo Verde School does not currently offer industrial arts education, it is recommended that the district superintendent be encouraged to explore the possibilities for developing such a program in cooperation with the Arlington School District, and perhaps the Liberty School District as well. (See "Arlington School District, Conclusions and Recommendations.")

SUPPLEMENT F

TEACHER LIABILITY IN INDUSTRIAL ARTS

Conditions under which a shop teacher is likely to be considered negligent should an accident to a pupil occur:

1. Absence of teacher from shop while pupils are in the shop.

2. Teacher leaving the shop, with unqualified teacher in charge.

3. Pupils using equipment in the shop which has not been approved by the board of education.

4. Permitting pupils to work in the shop other than during the regular scheduled periods and especially without acceptable supervision.

5. Permitting pupils not enrolled in classes to use power equipment.

6. Pupils being sent outside the shop to perform hazardous duties.

7. Making the use of all power tools compulsory.

8. Allowing pupils, especially prone to accident, to use power machines. Some physical and also some mental conditions should make a pupil ineligible in the use of some power tools.

9. Failure to keep written reports of every accident occurring in the school shop regardless of injury.

10. Failure to get written statements from witnesses.

11. Failure to administer safety tests and to retain such satisfactorily passed tests for use in case of liable suits for negligence.

12. Failure of the teacher to keep in mind the fact that his pupils are children and that the actions of children are normally guided by childish impulses. It is the teacher's duty to use much care in anticipating or foreseeing the results of such impulses and prevent avoidable injury.

13. Failure of the teacher to realize that the ordinary care mentioned above is defined by law as greater caution in conduct when one is dealing with children than with adults. Children do not think, act or avoid danger as adults would. Danger may even attract them.

14. Failure of the teacher to realize that the law demands from children

less care for their own safety than it demands from adults. The measure of care in this instance is the care usually shown by children of like age, intelligence, and experience in similar situations. Children may take risks that adults will shun.

There are many specific conditions of a physical and human nature which must be properly controlled in order to avoid being held legally liable for the injury of pupils in the school shop.

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LIBRARY PROGRAM

Point of View

The school library has been called the heart of the school, the coordinating agency, the service center, and more recently the Instructional Materials Center. Implicit in such descriptions is the recognition that a good library is needed in every elementary school, in rural as well as in urban schools, and in small schools as well as in large ones.

The school teaches children how to read, but it is the school library that enables them to read for all the personal, educational, and vocational needs of youth that reading can satisfy. In order for a school library to be a library and not just a storehouse of materials, it must be used; and the best used libraries are those that are directed by a librarian trained in particular skills of service to children and young people.

The good school library, then, depends on three basic ingredients: the collection itself (books, pictures, records, pamphlets, films, and a variety of other materials of learning); the place in which those materials are kept; and the librarian who selects the materials and fosters their usage by the children.

The collection of the school library today must contain not only books but all instructional materials. It must present a balance of new and old, standard and up-to-date, titles and a choice of materials on all subjects, both informational and recreational.

The room in which the library collection is kept is admittedly less important than the collection itself, but inadequate quarters can adversely affect an otherwise good library program. The purpose of the library is to motivate young people to read; the library, therefore, should be perhaps the most attractive suite of rooms in the school.

Good school library service rests upon what the librarian does with the space and the collection. The skilled and professionally trained librarian is seen as the most important ingredient of the three basic ones. The four major areas of service with which she is concerned are these: "free" reading, reading guidance, teaching library skills, and supervised reference or research work.

There is one invisible ingredient for an effective school library program -- the understanding and support given to the school library by the administrator and faculty who appreciate the contribution of the school library in today's schools and motivate the students to be effective library users.

Teaching children to use books and the library entails a procedure that departs sharply from the single textbook type of teaching and learning. Whether the class uses the library to select books for leisure reading, or for a laboratory period to work out units and projects, the students need the teacher's guidance while they are in the library. The teacher should have collections of books, pictures, and other materials in the classroom where groups or committees can work out different parts of a subject or unit.

The values of the centralized library over the limited classroom collection are numerous. The expense of furnishing each classroom with all materials suggests the most important one. The library's orderly arrangement of extensive materials aid children in developing the ability to locate materials and use them independently.

With the school library literally the heart of the educational program, the students of the school have their best chance to become capable and enthusiastic readers, informed about the world around them, and alive to the limitless possibilities of tomorrow.

Observations and Commendations

Arlington School

The Principal and the Board of Trustees have recognized the need for expanding and improving the physical facilities for housing the collection of instructional materials, including library books, films, filmstrips, recordings, and other teaching aids. There is now on the drawing board a plan for a new library building. This is a great step forward toward fulfilling the educational needs of the students of Arlington District.

The principal has an exceptionally fine perception and workable knowledge of the procedures, materials, and personnel needed to organize a materials center.

How satisfying to walk into practically all classrooms at Arlington and to see a collection of library books. This seems to reflect the whole philosophy of Arlington School District: a Board of Trustees which supports the development of reading skills; a principal who knows how and when to guide and encourage teachers to use library books to increase and improve the reading skills, and teachers who take advantage of the materials available.

With this stable foundation on which to build a library, it is easy to predict the growth and development of all students in the District providing there are definite objectives set up to be obtained in the areas of library personnel, larger book collections, and adequate equipment for the library.

A three-year plan for the development of the Materials Center was discussed with the principal. In general, the goals to be attained should be in the three large categories: personnel, collection of materials, and equipment in library.

Buckeye Elementary School

What a pleasure to walk into the Buckeye Library. The Board of Trustees, the administrators, and the librarian are to be highly commended for planning and making the library a very attractive and orderly looking place for the children to use.

The administrative concept of having a person in the library who is there to guide and encourage the child to read, and not to do clerical work, is very professional and progressive.

It was surprising not to find any room-collection of books in the upper grades, 4-8, that had been selected from the library for necessary reference work beyond the limited textbook.

It was very gratifying to find a library nook in each of the primary rooms. The teachers of the primary grades talked enthusiastically about reading daily to the children from the library books, and about allowing the children to take the books home to read, or to be read to by parents or older brothers and sisters. The book collections in the primary grades were very limited and inadequate in regard to quantity and quality - vocabulary, illustrations and content. Receiving only seven books per year, per teacher, is not meeting the needs or the interests of the students, nor the curricular needs. Library books to supplement the new science textbooks were badly needed.

One of the most notable things about the library collection was the good selection of reference books: Webster's Biographical Dictionary, Webster's Geographical Dictionary, Who's Who, The World Almanac (1960), Atlases, and many other excellent reference tools. One wonders if, or when, these books were being used if the teachers are not required to come to the library with their classes. When the first class came to the library it was noted that the teacher brought the students to the door, but did not stay with them.

Missing from the library were the daily newspaper and magazines - necessary materials of any library.

The library was being used for recreational reading on the part of most of the students because there were no assignments for further reference from the classrooms. Reading for pleasure is only one facet of the school library program; and another is to supplement the curriculum.

The many uses of the library, the library program, the teaching of library skills - are more important than the organization of the library. However, it is impossible to teach the use of the library if it is not arranged according to the Dewey Decimal System of Classification. Buckeye students were being deprived of a vital part of their elementary training by not having the library properly organized.

The library goals that are set down cannot be attained in one year, or even two; however, they are realistic and attainable, and certainly worth the effort for the educational benefits to be gained by the Buckeye children. With capable leadership exemplified by the administrators, plus the fine beginning of a real library, these goals will become a challenge for all to provide the Buckeye students with a library program equal to any in the State of Arizona.

Liberty School

The eighth grade teacher has many of the needed qualifications for a full-time librarian: enthusiasm, salesmanship abilities, knowledge of children, a gift for orderliness, creativeness, and a high degree of industriousness. The library reflects many long hours of organizational work given beyond the call of duty by the teacher-librarian.

One of the most obvious factors exemplified in the library, in the classrooms, and on the playgrounds, was the well-behaved manner of the Liberty students. Yet, groups of two - three children were allowed to converse quietly in the library. This is a good policy, because nothing encourages the student to read more than to be told by his peers that the book is a good one. The students who came to the library behaved as if books had been their companions for many years. The faculty seemed to make use of the library. Many teachers had room collections of books.

The circulation record, 2.5 books per student, monthly, is good compared to the few hours that the library is open during the day. Statistical figures on number of volumes, number of magazines, and other facts, were at the teacher-librarian's finger tips.

The collection was not arranged according to the Dewey Decimal System of Classification, however, the students seemed to know where to find their grade-level books. It is difficult for one person to know the reading ability of each student. Psychologically it is not a good practice to label the sections of the shelves - grade 5, grade 7, etc. The teacher-librarian explained that this had to be done because of lack of space when a number of students tried to use the library at the same time.

The four greatest weaknesses of the library are: (1) the limited number of hours that it is open during the day; (2) the lack of the use of recommended guides in selecting a well-balanced collection; (3) the separation of the reading room from the books; and (4) the lack of a full-time qualified librarian.

Palo Verde School

One of the most outstanding factors of the Palo Verde Library is the teacher who is in charge of it. She demonstrated her intense interest in the childrens' reading. She has become so much a part of the library that she wants to take library science courses this summer. This is excellent. The inclusion of Library Institutes under NDEA was discussed with the teacher. The teacher's time that is spent, beyond the call of duty, in going to Phoenix to the Maricopa Free Library to select books for the students, as well as for adults of the community, is to be highly commended.

The school was attractive and well-kept and it was surprising to find the library in a state of needed attention. The purpose of the library is to motivate reading; to make the room look inviting to the students and faculty is certainly one of the first steps toward attaining this purpose. (Further details for quarters are listed under "Recommendations").

The teachers seemed to make use of the library collection. It would be difficult to get all classes, grades 1-8, into the library for 40-minute periods if the room is only open from 3:00-4:00 P.M., four days a week.

The budget for books and magazines was much too small to provide the needed books and materials.

The major use of books seemed to be for recreational reading. There were many reasons for this: lack of variety of books on shelves, lack of direction from the classroom, and lack of reading guidance. The child does not go beyond his limited interests without inspiration and motivation from the teacher and the librarian.

The following recommendations are suggested as being realistic and attainable. These guides will definitely assist the total school program.

Conclusions and Recommendations

Arlington School

Personnel (1965-66). Employ one professionally trained librarian for the beginning of the school year, 1965-66. A librarian is needed to provide the Arlington students with the library services that are provided in most elementary schools today. The American Library Association recommends one librarian for each 300 students in every school, elementary and secondary. A librarian who provides good library services to the two schools, Arlington and Harquahala, could be kept constantly busy. Her schedule should be 4 days a week at Arlington, one day a week at Harquahala.

Duties of the librarian.

1. Selection of Books - The librarian must: select books to meet the needs of the retarded readers, the slower readers, and the accelerated readers; select books to meet the curricular needs of all grade levels and subject areas; select books for recreational, or pleasure reading; select books to aid in the teaching of Arizona history.
One of the most important phases and time-consuming jobs of the librarian is book selection. She must read, read, read, and know books; she must know sources and guides in order to find the needed books. (There is a list of selection aids at the end of Recommendations).

2. Classifying and Cataloging Books - The librarian must process all the books for the schools. This will probably take one-fourth of her time. She must establish a card catalog for the use of the students. When students are deprived of the use of a properly organized library, it makes it difficult for them when they reach high school where the collection is properly arranged.

3. Motivation of reading and Reading Guidance - The librarian must give book talks about the new books and assist with group activities and class projects in research and reference work in the library. She must: have story hours for all first and second graders at both schools and give cooperative assistance to students in the development of desirable study and reading habits; make suggestions of materials available by preparing bibliographies for the use of teachers and students; give individual reading guidance to each student. It is recommended that a librarian spend 6 minutes with each student every week. With 270 students that would be 1620 minutes and there are only 2100 minutes in each school week.

4. Teach Library Skills - All pupils must be taught use of the library.

5. Maintain Statistical Records - The librarian must keep a daily record of all materials circulated - books, films, film strips, recordings, pictures and other instructional materials. She must write an annual report of all library developments for the principal and the Board.

6. Repair and Care for all Materials

7. Organize a Library Club

8. The librarian must have skill in working with people. It is easy to see that one librarian could be a real innovation toward the improvement of teaching in the district.

It would be false economy to build a new library and not to employ a professionally trained librarian who would make the investment pay in educational dividends for each student and faculty member.

Comparing Arlington School Library with the national standards. The following Table III will show the standards that the American Library Association has established for the average library in the United States as compared with the Arlington Library in 1964.

Budget. It is recommended that $4.00 per student be allocated annually to the purchase of books only. The average cost of a book today is $3.00. In order to have books for the opening of the new library, a time that is important to really motivate the students' reading, a book budget of $1000.00 for 1965-66 is highly recommended. The budget could be decreased for the next two years to $3.00 per student. When the collection has reached 4000 volumes the budget could be decreased further.

Other recommendations. For recommendations concerning weeding the collection, book collections, selection of library materials, magazines and newspapers, in-service training, and tour of the high school library see "General Recommendations-For All Schools" at end of this section.

TABLE III

ARLINGTON SCHOOL LIBRARY COMPARED WITH NATIONAL STANDARDS

	ARLINGTON SCHOOL HAS	ALA RECOMMENDS*	ARLINGTON SCHOOL NEEDS
PERSONNEL			
Librarians	None Teacher-Librarian - 1 hr. 30 mins. daily	1 for each 300 students	1 Librarian
Training (full-time Librarians)	None	30 semester hours library science	B.A. plus 15 hrs. Library Science
Clerks	Principal's secretary sometimes	1 for each 600 students	
Student Assistants	Yes	No substitute for paid clerk	
Volunteer helpers	No	No substitute for trained personnel	
QUARTERS			
Reading Room(s)	Yes	Minimum space for 45-55 or 10% of enrollment over 550	Space to seat at least 37 students (further explanation with drawing of library)
Sufficient space for: Workroom	No	Sufficient space for: technical processing	
Storage	No	Supplies and periodicals	
Office	No	Routines	
Listening and/or Audio-Visual Room(s)	No	Storage, distribution & repair of materials and equipment, production of materials	Will have in new library
Conference Room(s)	No	1 in schools less than 1,000 students	Will have in new library
Classroom	No	Adjoins reading room for library use by class groups	
EQUIPMENT		Adequate and functional	Needs for new library outlined with drawing of library

TABLE III - CONTINUED

	ARLINGTON SCHOOL HAS	ALA RECOMMENDS*	ARLINGTON SCHOOL NEEDS
BUDGET (Annual)			
For regular Library Books	Inadequate	$4.00-$6.00 per student	$4.00 per student $1080.00 Annually
Additional funds for: Reference Books	None	Additional funds: To meet needs of school	$120.00 for one set of Encyclopedia
Newspapers & Pamphlets	None	To meet needs of school	1 daily newspaper $6.60 per year
Magazines		To meet needs of school	17-20 mag. $80.00
Supplies	None	To meet needs of school	
Rebinding	None	To meet needs of school	
Professional Materials	?	$200.00 - $800.00 depending on needs	
Equipment		Adequate & functional	2 round tables, 3 oblong tables. Table for Conference Rm. Teacher's desk. Dictionary Stand. Atlas Stand. Check-out desk. 37 new chairs, 2 lounge chairs for reference area
Personnel (Salaries)		Comparable to other personnel	
PRINTED MATERIALS			
Students: Books	It was impossible to count books because there was no shelf list, nor record of collection.	Minimum collection of 6,000 larger schools - 10 bks. per pupil	
Magazines	Kept in Teacher's Lounge	K-6, 25; K-8, 50; Jr. H., 70; Sr. H. 120.	17-20 magazines $80.00 (a suggested list of magazines is included at end of Recommendations)
Newspapers	None	3-6	
Pamphlets	None	Extensive collection	
Teacher's: Books	Did not see any	200 - 1,000 titles	
Magazines	Yes	25 - 50 professional Magazines	
Other		Instructional materials as needed	

TABLE III - CONTINUED

	ARLINGTON SCHOOL HAS	ALA RECOMMENDS*	ARLINGTON SCHOOL NEEDS
PROGRAM			
Instruction in Use	Because library is not organized properly and without a librarian there is no instruction in use of library	Continuous, extensive plan developed by principal, teachers, and librarians	A properly organized library and a librarian to teach library skills.
Class Use	Books in practically all class rooms	Library used as an extension of classroom work	In-service training for teachers needed. (Further explanation under Recommendations)
Individual Use	Students check out books	Library is open to all students and teachers before, during & after the school day	
Home Loans	Yes	Library resources easily available for home use	
Classroom Loans	Yes	Continuous short & long-term loans of all types of materials	
Reading Guidance	Some	Comprehensive program - Joint responsibility of teachers, librarians & parents	
Audio-Visual Use	None in library	Students guided in listening and viewing	New Library should provide space for both
Reference Service	None	Library used as a laboratory for reference and research work by individuals & groups	More reference materials needed
Student Assistants	Yes	Organized student participation without exploitation	
ORGANIZATION			
All Materials	Not organized according to the Dewey System	Organized to permit the most efficient use	Need Librarian
Book Collection	No	Classified & catalogued	
Audio-Visual Materials	Not in library	Catalogued	

TABLE III - CONTINUED

	ARLINGTON SCHOOL HAS	ALA RECOMMENDS*	ARLINGTON SCHOOL NEEDS
ORGANIZATION (cont'd)			
Records Dept:			
Acquisition	Not available in library	Simple as possible	A librarian could assume all of these responsibilities
Circulation	None	Simple as possible	
Accession and/or Shelf List	None	Simple as possible	
Discards	No record of discards	Simple as possible	
Rebinding	None	Simple as possible	
Annual Report	None	Statistical data collected during year	
Centralized Facilities	None	Needed when 3 or more schools make up system	

*STANDARDS FOR SCHOOL LIBRARY PROGRAMS
American Library Association, 1960
$2.50. With Discussion Guide, $3.00

ALA - 50 E. Huron Street
Chicago, Illinois

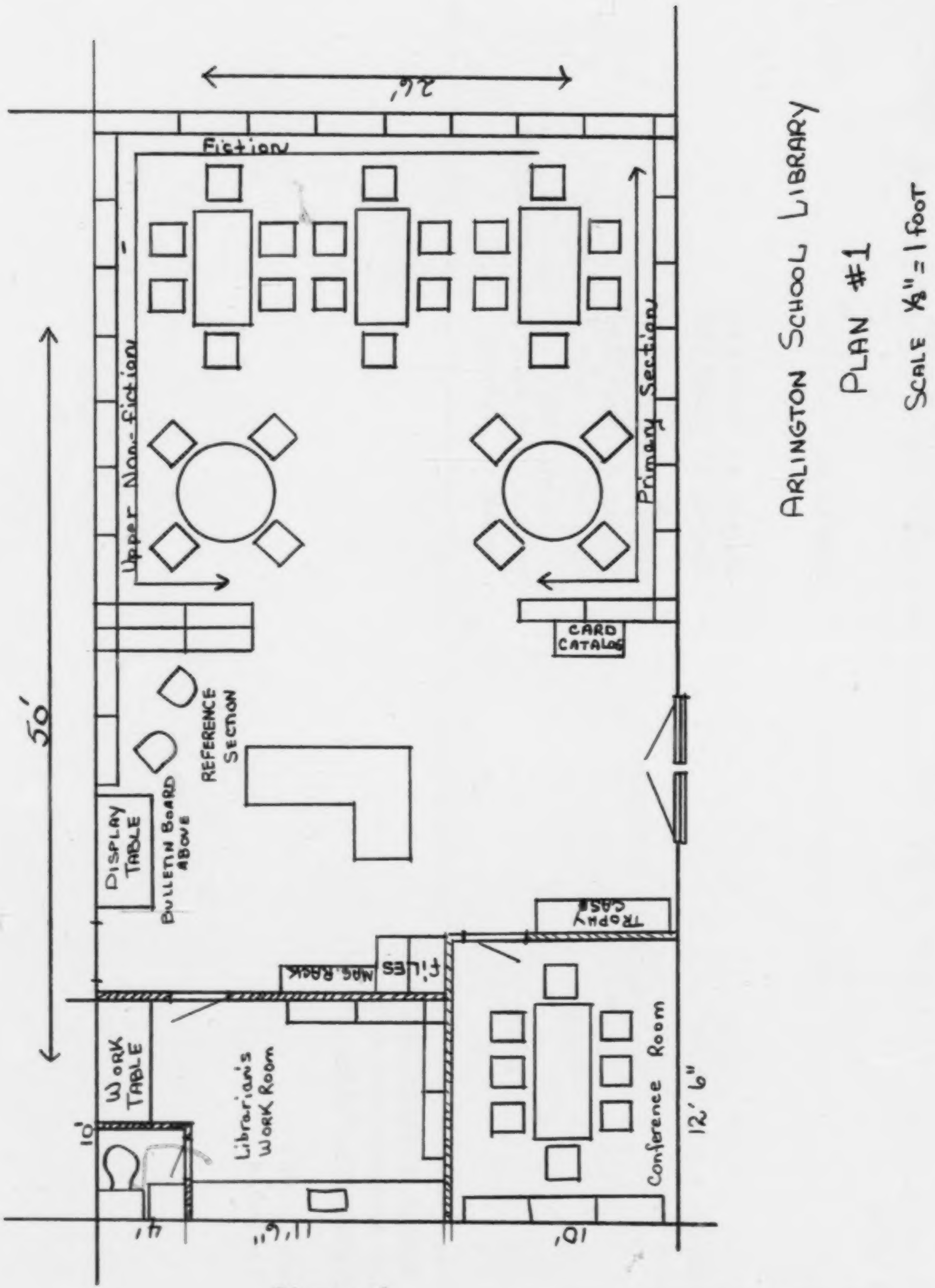
ARLINGTON SCHOOL LIBRARY
PLAN #1
SCALE 1/8" = 1 FOOT
26'
50'
Fiction
Upper Non-fiction
Primary Section
CARD CATALOG
REFERENCE SECTION
DISPLAY TABLE
BULLETIN BOARD ABOVE
TROPHY CASE
MAG. RACK
FILES
WORK TABLE
Librarian's WORK ROOM
Conference Room
12' 6"
10'
11' 9"
4'
10'

Figure 6

Arlington School Library

Plan #1

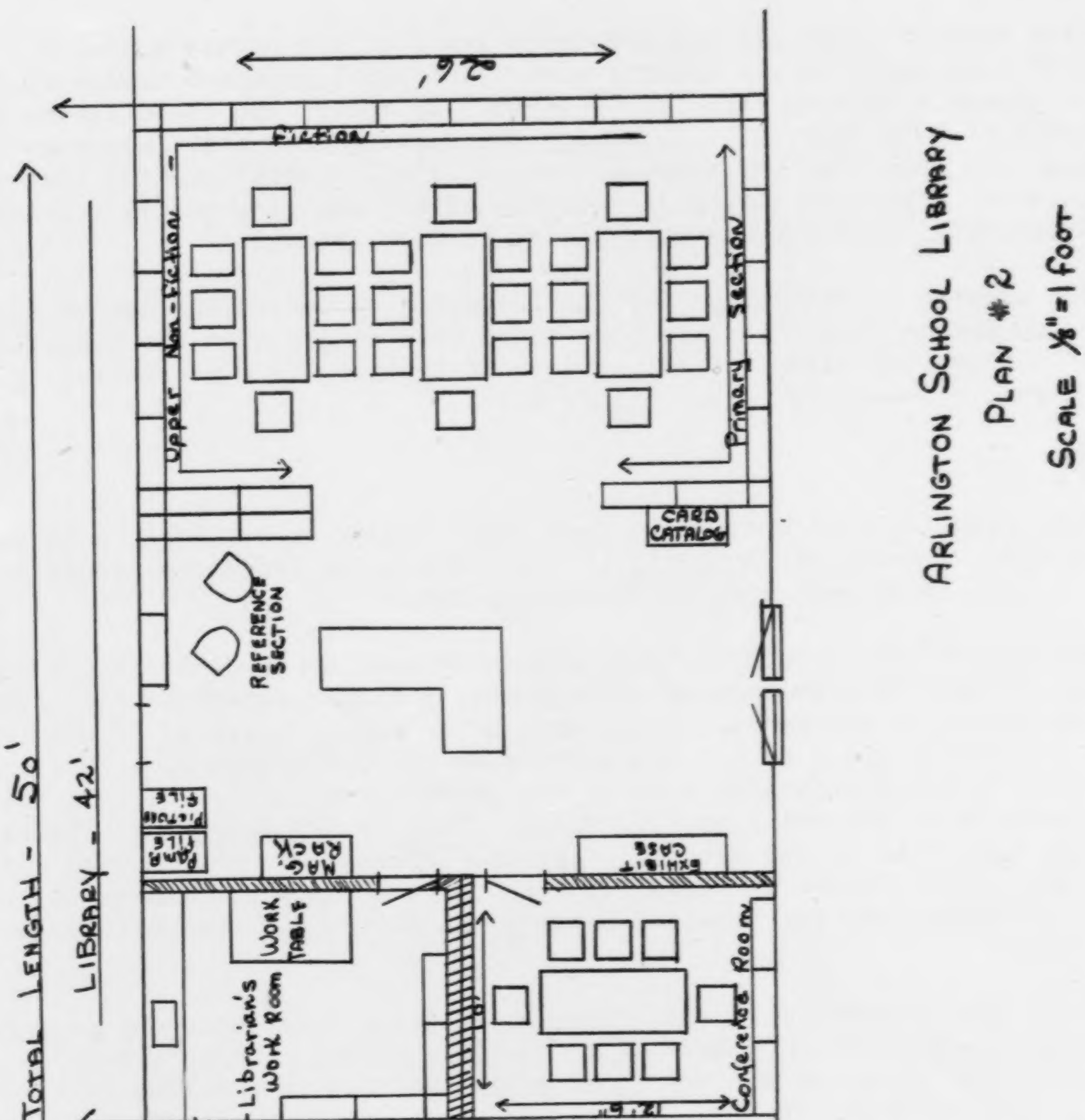
ARLINGTON SCHOOL LIBRARY
PLAN # 2
SCALE 1/8" = 1 FOOT
TOTAL LENGTH - 50'
LIBRARY - 42'
26'
Fiction
Upper Non-Fiction
Primary Section
CARD CATALOG
REFERENCE SECTION
PAMP. FILE
PICTURE FILE
MAG. RACK
EXHIBIT CASE
WORK TABLE
Librarian's Work Room
Conference Room
12'6"
Storage Area
8'
4'6"
4'6"

Figure 7

Arlington School Library

Plan #2

Plans for equipment and furnishings in Arlington School Library. There are two drawings for the interior of the new library. The main difference between the two is the use of 8 ft. of space at one end of the library that was to be used as a storage area. A study of both plans may cause the district to reconsider and decide to use the entire area 26'x50' for the Materials Center (Plan #1). The differences between Plan #1 and Plan #2 are presented below.

Plan #1

This plan utilizes all the available space of the entire building thus adding 6' more space to the reading area. This will permit 5 tables instead of 2-3, giving a seating capacity of 26-30. By adding two round tables the appearance is more spacious. Enlarging the reading area also increases shelving. In this plan the reading area is 21'x24' (still smaller than the average size classroom) giving 17 sections of 42" shelving and 15 sections of 73' shelving, thus increasing capacity to 4410 volumes.

The viewing of filmstrips and the listening to recordings can be done in the conference room. In this plan there will be space in the Librarian's office to house the films and filmstrips. A lavatory is a necessity. Plan #1 is highly recommended. (See Figure 6.)

Plan #2

This plan shows 8' subtracted from total length of building to be used for storage. Because the building is very narrow the length is needed in order to make up in part what is lacking in width.

The entire area should be large enough to seat 40 students at one time. When the library program becomes operational, and the library becomes the learning center of the campus, there will be an entire class of 27 students in the library, a group of 4-5 are working in the conference room, another group will be doing reference work in the reference area, 2-3 will be viewing filmstrips or listening to recordings. This is LEARNING -- all going on at the same time in the materials center. Please note how crowded the tables and chairs (drawn to scale) look in the reading area. There is practically no space left for browsing between the chairs and the shelves in either plan.

There are 15 sections of 42" (height) shelving located in the primary section and reference sections - capacity 1575 volumes. There are 13 sections of 73" shelving for the upper grade non-fiction and fiction - capacity 2275 volumes. This plan also has three sections of 42" shelving in the Conference Room for professional books - (315 volumes). If the enrollment increases the shelving will be inadequate. Seating capacity and browsing space are definitely lacking in Plan #2. There is no space for viewing and listening in this plan. It is much more economical to plan for adequate space now rather than try to add to the building later. (See Figure 7.)

Buckeye Elementary School

Personnel. Arizona State Certification requires that a person in charge of the library, when the school's enrollment is over 200, have 15 hours of library science training.

It is highly recommended that the librarian take a course in Library Organization and Administration during the summer, 1965. She would receive from this course an overview of cataloging, book selection, and the teaching of the use of the library. She could actually gain from this one course the knowledge needed to properly organize the Buckeye library.

Note: Under NDEA there will be Library Institutes. If one of the institutions of higher learning in Arizona accepts the plan librarians could probably get expenses paid to attend an institute.

Classification and Cataloging. There is an unorthodox method used in the organization of the library materials. Reference books were found in five different sections of the library, even across the room from one another. A well-organized library is the first step toward providing effective library service in a school. Cataloging and classification are highly specialized activities which require training on the part of the person who performs them.

In order to classify and catalog the current collection it is recommended that a trained person in library procedures be employed during the summer to set the whole plan in operation. The Buckeye Elementary students need to have the opportunity to learn how to use a library properly before they go to a high school. It is recommended that pupils be made familiar with the Dewey Decimal System; this would be educationally sound as Buckeye Union High School already utilizes this classification system.

Teachers attend students in Library Classes. All classroom teachers should go with their classes to the library. Teachers should go to the library with a purpose, or purposes - to peruse the collection and select books that meet the curricular needs, and to aid the students in their selections. The librarian cannot possibly know the reading level of 500 students. There is a unit on Library Skills in each language book from grades 5-8. The teacher must know the library materials before she can adequately teach these skills. The library becomes much more meaningful and beneficial to the student if he has a classroom assignment to do further reference work in social studies, science or literature. The use of the Reader's Guide should be taught to all eighth graders.

Comparing Buckeye Library with National Standards. (See Table IV.) It is always interesting to compare your library with some recognized standard. The National Standards were set up in order that American schools might try to achieve the average requirements for libraries.

Budget. It is highly recommended: that $3.00 per student be allocated annually for the purchase of books. (The average cost of a book today is $3.00). At least $80.00 beyond this should be used to buy magazines each year.

Other recommendations. For recommendations concerning weeding the collection, book collections, selection of library materials, magazines and newspaper, in-service training, and tour of the high school library see "General Recommendations-For All Schools" at end of this section.

TABLE IV

BUCKEYE ELEMENTARY SCHOOL LIBRARY COMPARED WITH NATIONAL STANDARDS

	BUCKEYE ELEMENTARY SCHOOL HAS	ALA RECOMMENDS*	BUCKEYE ELEMENTARY SCHOOL NEEDS
PERSONNEL			
Librarians	1 Librarian for 500 students	1 for each 300 students	
Training (Full-time Librarians)		30 semester hours library science	15 semester hours library science
Clerks	Some processing of books done by Supt's clerk	1 for each 600 students	
Student Assistants		No substitute for paid clerk	
Volunteer Helpers		No substitute for trained personnel	
QUARTERS			
Reading Room(s)	Seats 30 students	Minimum space for 45-55 or 10% of enrollment over 550	To make a real materials center, the space should be doubled.
Sufficient space for:			
Workroom	No	Sufficient space for: technical processing	
Storage	No	Supplies and periodicals	
Office	No	Routines	
Listening and/or Audio-Visual Room(s)	No	Storage, distribution, & repair of materials & equipment Production of materials Listening and viewing	
Conference Room(s)	No	1 in schools less than 1,000 students	
Classroom	No	Adjoins reading room for library use by class groups	

TABLE IV - CONTINUED

	BUCKEYE ELEMENTARY SCHOOL HAS	ALA RECOMMENDS*	BUCKEYE ELEMENTARY SCHOOL NEEDS
EQUIPMENT		Adequate and functional	
BUDGET (Annual)			
For Regular Library Books	Conflicting reports Librarian reported $1000-$1500 annually for books	$4.00 - $6.00 per student	$3000.00 for books
Additional funds for: Reference Books	No	Additional funds: to meet needs of school	
Newspapers and Pamphlets	No	to meet needs of school	$7.80 per year
Magazines	No	to meet needs of school	$80.00 annually
Supplies	No	to meet needs of school	
Rebinding	No	to meet needs of school	
Professional Materials	?	$200 - $800 depending on needs	
Equipment		Adequate & functional	
Personnel (Salaries)	Yes	Comparable to other personnel	
PRINTED MATERIALS			
Students: Books	Unable to tell how many books in collection because of lack of shelf list	Minimum collection of 6,000 Larger schools - 10 bks. per pupil.	A cataloging system
Magazines	None	K-6, 25; K-8, 50; Jr.H., 70; Sr.H., 120.	Need 17-20
Newspapers	None	3 - 6	Need at least one
Pamphlets	No vertical file of pictures and brochures	Extensive collection	

TABLE IV - CONTINUED

	BUCKEYE ELEMENTARY SCHOOL HAS	ALA RECOMMENDS*	BUCKEYE ELEMENTARY SCHOOL NEEDS
Teachers:			
Books		200 - 1,000 titles	
Magazines		25 - 50 professional magazines	
Other		Instructional materials as needed	
PROGRAM			
Instruction in Use	Limited	Continuous, extensive plan developed by principal teachers, & librarians	Need of plan
Class Use	No	Library used as an extension of classroom work	
Individual Use	Yes	Library is open to all students & teachers before, during & after the school day	
Home Loans	Yes	Library resources easily available for home use	
Classroom Loans	Not in upper grades	Continuous short & long-term loans of all types of materials	
Reading Guidance	Done by librarian, not by teachers	Comprehensive program - Joint responsibility of teachers, librarians & parents	
Audio-Visual Use	No	Students guided in listening and viewing	
Reference Service	No	Library used as a laboratory for reference and research work by individuals and groups	
Student Assistants	Yes	Organized student participation without exploitation	

TABLE IV - CONTINUED

	BUCKEYE ELEMENTARY SCHOOL HAS	ALA RECOMMENDS*	BUCKEYE ELEMENTARY SCHOOL NEEDS
ORGANIZATION			
All Materials	No	Organized to permit the most efficient use	Organization under Dewey Decimal System
Book Collection	No	Classified & catalogued	
Audio-Visual Materials	Not in library	Catalogued	
Records Kept:			
Acquisition	No	Simple as possible	
Circulation	Yes	Simple as possible	
Accession and/or Shelf List	No	Simple as possible	
Discards	No	Simple as possible	
Rebinding	Repairs done by librarian	Simple as possible	
Annual Report	No	Statistical data collected during year	
Centralized Facilities		Needed when 3 or more schools make up system	

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*STANDARDS FOR SCHOOL LIBRARY PROGRAMS. American Library Association, 1960. $2.50. With Discussion Guide, $3.00

Liberty School

Personnel. The American Library Association has set up the standard that each elementary school with an enrollment of 300 students should have one full-time librarian. This is a goal that many schools are fulfilling because administrators are demonstrating firm belief in the idea that the library is the focal point around which the curriculum is built; and, that today's knowledge is too abundant to limit the teaching from a single textbook any longer. (Many science and social science textbooks are practically out of date before they are published).

Arizona Certification rules have interpreted the standards by requiring that each school with over 200 students have a person in charge of the library who has had 15 hours in library science training. Which means that Liberty needs--and should have--a library specialist in charge of the library five days a week, all day.

This year's extension and expansion of the NDEA funds has included Institutes for the training of librarians. Interested Liberty teachers should be encouraged to take advantage of this important project, perhaps during the summer, 1965.

Quarters. It is highly recommended that the book collection be moved to the reading room this summer. Since the care of books has been taught so very well to the students (only four books lost last year), it would seem reasonable to assume that the books will not disappear, even if a librarian is not on duty at all times. It would be a great advantage to the students and the teachers if they could use the library as a learning center laboratory. If the teachers take their classes to the library they could make use of the magazines, the picture file, and the other materials in the vertical files. It is far better to use the books and even lose a few, than it is to let them lie dormant on the shelves. It is generally true that the more responsibility the students and faculty are given in the use of the library, the more respect they will have for it.

It was noted that the teacher-librarian wrote the name of the student on the card when he checked out a book. This is a waste of time on the part of the teacher, and is not giving the student the role of responsibility that he should assume, even down to the second semester first graders, who should be checking out their own books.

There are reference books in the library that should be used for further research, another reason to open the library for a longer period of time.

Teachers attend students in library classes. It is through the guidance of the principal that teachers go to the library with a purpose, or purposes - to peruse the collection and select books that meet the curriculum needs, and to aid the students in their selections. The librarian cannot possible know the reading level of all students in the school.

There is a unit on Library Skills in each language book from grades 5-8. The teacher must know the library materials before she can adequately teach these skills. The library becomes much more meaningful and beneficial to the student if he has a classroom assignment to do further reference work in social studies, science or literature. The use of the Reader's Guide should be taught to all eighth graders.

Comparing Liberty Library with national standards. (See Table V.) It is always interesting to compare your library with some recognized standard. The "National Standards" were set up in order that American schools might try to achieve the average requirements for libraries.

Budget. It is highly recommended that $3.00 per student be allocated annually for the purchase of books. The average cost of a book today is $3.00. Also at least $80.00 beyond this should be used to buy magazines each year.

Classification and cataloging. It is recommended that pupils be made familiar with the Dewey Decimal System; this would be educationally sound as Buckeye Union High School already utilizes this classification system.

Other recommendations. For recommendations concerning weeding the collection, book collections, selection of library materials, magazines and newspapers, in-service training, and tour of the high school library see "General Recommendations-For All Schools" at end of this section.

Palo Verde School

Quarters. It would seem that the tables in the library are overdue for replacement. It has been found that students study better if they can be in smaller groups. It is recommended that three oblong tables (2½'x5') and two round tables, (52" in circumference) in light color, plus colorful new plastic chairs, be added to the library. Since the room is as dark as it is, a coat of paint of much lighter hue - the yellow, the off-white, or the green family of colors - would add to the cheerful atmosphere that could be created. A metal magazine rack could be placed (not too close) in front of the furnace. The shelves could be painted the same color as the walls. One color of lighter tone would make the entire room look more spacious.

The tables (cost: $240.00) the chairs (28 chairs at $9.00 ea., cost: $252.00) and the painting would total around $525.00. Improvement of instructional areas, including equipment, can be listed under NDEA appropriations. In other words, Palo Verde could spend $525.00, and receive $262.50 in return from Federal funds. The learning laboratory, (the library), could certainly be a part of the improvement of any or all programs: science, social studies, English and reading.

Use of library. With a school of 180-200 students it would be reasonable to assume that if the administration supported a policy of "Take Care of Library Materials" and emphasized it to teachers, that the children, in general, would learn to be more responsible for books. Translating this policy into action would mean that teachers would take their entire classes to the learning center although a teacher-librarian were not on duty. Many schools place responsible upper-classmen in charge of the library during parts of the day. It is excellent training for the students, and it can be a workable situation, provided they are properly trained beforehand.

It is better to lose a few books rather than prevent the majority of students from reaping the benefits of further use of the library. It is an administrative responsibility to require teachers to take their classes to the library for the following purposes: to peruse the collection and select books that meet the curricular needs, and to be there to aid the student to

TABLE V

LIBERTY SCHOOL LIBRARY COMPARED WITH NATIONAL STANDARDS

	LIBERTY SCHOOL HAS	ALA RECOMMENDS*	LIBERTY SCHOOL NEEDS
PERSONNEL			
Librarians	Teacher-Librarian	1 for each 300 students	1 full-time librarian
Training (full-time librarians)		30 semester hours library science	15 hrs. library science
Clerks		1 for each 600 students	
Student Assistants		No substitute for paid clerk	
Volunteer Helpers		No substitute for trained personnel	
QUARTERS			
Reading Room(s)	Yes	Minimum space for 45-55 or 10% of enrollment over 550	Book collection adjoining reading room
Sufficient space for: Workroom	No	Sufficient space for: technical processing	
Storage	No	supplies and periodicals	
Office	No	routines	
Listening and/or Audio-Visual room(s)	No	storage, distribution, & repair of materials and equipment	
		production of materials listening and viewing	
Conference Room(s)	No	1 in schools of less than 1,000 students	
Classroom	No	Adjoins reading room for library use by class groups	

TABLE V - CONTINUED

	LIBERTY SCHOOL HAS	ALA RECOMMENDS*	LIBERTY SCHOOL NEEDS
EQUIPMENT		Adequate and functional	
BUDGET (Annual)			
For Regular Library Books		$4.00 - $6.00 per student	$1600.00 per year
Additional funds for:		Additional funds:	
Reference Books		to meet needs of school	Yes
Newspapers and Pamphlets		to meet needs of school	
Magazines		to meet needs of school	More magazines for children
Supplies		to meet needs of school	
Rebinding		to meet needs of school	
Professional Materials		$200 - $800 depending on needs	
Equipment		Adequate & functional	
Personnel (Salaries)		Comparable to other personnel	Yes
PRINTED MATERIALS			
Students: Books		Minimum collection of 6,000 Larger schools - 10 bks. per pupil	
Magazines		K-6, 25; K-8, 50; Jr. H., 70; Sr. H., 120	
Newspapers		3 - 6	
Pamphlets		Extensive collection	
Teachers: Books		200 - 1,000 titles	

TABLE V - CONTINUED

	LIBERTY SCHOOL HAS	ALA RECOMMENDS*	LIBERTY SCHOOL NEEDS
Magazines		25 - 50 professional magazines	
Other		Instructional materials as needed	
AUDIO-VISUAL MATERIALS			
All types		Sufficient number for use in classroom, library and home	
PROGRAM			
Instruction in Use		Continuous, extensive plan developed by principal, teachers, & librarians	
Class Use		Library used as an extension of classroom work	
Individual Use		Library is open to all students & teachers before, during & after the school day	
Home Loans		Library resources easily available for home use	
Classroom Loans		Continuous short & long-term loans of all types of materials	
Reading Guidance		Comprehensive program - Joint responsibility of teachers, librarians & parents	
Audio-Visual Use		Students guided in listening and viewing	
Reference Service		Library used as a laboratory for reference and research work by individuals & groups	

TABLE V - CONTINUED

	LIBERTY SCHOOL HAS	ALA RECOMMENDS*	LIBERTY SCHOOL NEEDS
Student Assistants		Organized student participation without exploitation	
ORGANIZATION			
All Materials		Organized to permit the most efficient use	
Book Collection		Classified & catalogued	
Audio-Visual Materials		Catalogued	
Records Kept:			
Acquisition		Simple as possible	
Circulation		Simple as possible	
Accession and/or Shelf List		Simple as possible	
Discards		Simple as possible	
Rebinding		Simple as possible	
Annual Report		Statistical data collected during year	
Centralized Facilities		Needed when 3 or more schools make up system	

*STANDARDS FOR SCHOOL LIBRARY PROGRAMS.
American Library Association, 1960
$2.50. With Discussion Guide, $3.00.

select books on his particular reading level. There is a unit on "Library Skills" in each language book from grades 5 through 8. The teacher must know the procedures and uses of the library collection before he can teach these skills. With the great abundance of knowledge available today the single textbook cannot begin to answer all of the questions. The student is "lost" in the high school if he has had no training in the use of the library.

Classification and Cataloguing. An unorthodox method was used in the organization of the Palo Verde library materials. A well-organized library is the first step toward providing effective library service in a school. Cataloguing and classification are highly specialized activities which require training on the part of the person who performs them.

In order to classify and catalogue the current collection it is recommended that a trained person in library procedures be employed during the summer to set the whole plan in operation. It is unfair to the Palo Verde students not to have the opportunity to learn how to use a library properly before they go to a high school. Buckeye High School is organized under the nationally accepted plan: the Dewey Decimal System of classification.

Budget. It is highly recommended that $3.00 per student be allocated annually for the purchase of books. The average cost of a book today is $3.00. At least $80.00 beyond this should be used to buy magazines each year.

Other recommendations. For recommendations concerning weeding the collection, book collections, selection of library materials, magazines and newspapers, in-service training, and tour of the high school library see "General Recommendations-For All Schools" at end of this section.

General Recommendations-For All Schools

Weeding of collection. The following guidelines may be of use in deciding what and how to weed the books.

A. Discard old books that are 'yellowed' from age and are unattractive, unused, or need replacing.
B. Discard old sets of encyclopedias.
C. Discard all books that are beyond repair.

Weeding is a continuing process. In the field of social studies changes are so rapid that librarians and teachers must be constantly alert to the necessity of providing children with books which present current and authentic facts about history and geography. The changes and new discoveries in science require vigilance in that field also. Encyclopedias and atlases must be replaced often enough to insure correct information. Encyclopedias should be replaced every three years, at least.

When books are discarded they should be removed from the school entirely by burning them. They should never be given to teachers for classroom use.

Note: It is highly desirable to place plastic jackets on new books for three good reasons: jackets protect the books from children's dirty fingers, they make and keep a collection alive and attractive, and by leaving the colorful cover on the book the child will select a jacketed book nine times out of ten in preference to an old and dirty cover. Jackets cost $.08 each.

Building book collections. A definite attempt must be made to build a well-balanced collection. When books are arranged according to the Dewey Decimal Classification system the collection should reflect the following picture: (This is an excellent guide for purchasing also)

Dewey No.	*Subject*	*Percentage*
000-100	Reference	1.2
200	Religion and Mythology	1.2
300 398	Social Sciences and Folklore	9.1
400	Language	.3
500	Science	13
600	Applied Science	10
700	Fine Arts	5
800	Literature	3.2
900 920	History and Biography	22.5
	Fiction	21.5
	Picture and Easy Books	13

Note: The collection should have 23% of science books.[6]

Selection of library materials. The selection of books from a commercial catalogue is a very limited method to use in choosing them. One does not always get the best book in a particular area when using this method. Books are read and reviewed by authorities in the field before they are listed in a recommended guide.

There is a bibliography for selecting books at the end of "Recommendations." Two titles recommended as purchasing guides in the areas of science by the State NDEA Department are: *AAAS Science Book List for Children* and *AAAS Science Book List for Young Adults*. They are $2.00 each, and may be purchased from AAAS Publications, 1515 Massachusetts Avenue, N.W., Washington, D.C., 20005.

Magazines and newspapers. In order to teach the *Reader's Guide* there must be magazines in the library. Many children will read magazines when they will not read an entire book. This is a good way to motivate reading. Students do not find too many magazines in their homes, therefore, they can gain wider horizons of today's events if offered current magazines in the library. Magazines should be allowed to circulate to the rooms. A list of magazines is included at the end of "Recommendations." (See Supplement G.)

For some of the same reasons as listed above, a daily newspaper should be in the library.

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[6] American Library Association, *A Basic Book Collection for Elementary Grades*. Chicago: American Library Association, 1960, p. iv.

In-Service training of teachers. To make the proper use of the library facilities, it would be wise to have a library consultant give a series of workshops in the use of the materials. By 1965, there will be a State Library Consultant who could do the workshops without charge to the District.

Tour High School Library. Each eighth grade class should be taken on a guided tour of the high school library before graduation from the elementary school.

SUPPLEMENT G

SUGGESTED LIST OF MAGAZINES FOR LIBRARY

NAME	PRICE
American Girl	$3.00
Arizona Highways	4.00
Boys Life	3.00
Calling All Girls	4.00
Children's Digest	4.00
Children's Playmate	2.50
Grade Teacher	3.60
Hot Rod	5.00
Instructor	4.50
Jack and Jill	3.50
National Geographic	8.00
Popular Mechanics	4.00
Saturday Evening Post	5.95
Sports Illustrated	5.00
Seventeen	5.00
One from Time, Newsweek, or U.S. News and World Report	8.00

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AUDIO-VISUAL

Point of View

The term audio-visual embraces a much greater area today than it has in the past. In the past, it has referred to specific instructional equipment, materials, and methods involving field trips, demonstrations, projected pictures, bulletin boards, exhibits, radio, recordings, etc., and quite recently educational TV and programmed instruction. Currently, it covers not only these but in addition, the psychology of perception, learning, and communication in an organizational framework that places great emphasis on the learner. It is evident, therefore, that the "audio-visual equals film" concept that many educators still hold is a highly narrow, inaccurate concept.

Audio-visual techniques put great value on the development of meaning. It is one thing to memorize and parrot a collection of strange words. It is quite another to understand their meaning. If teachers and students are to communicate meaningfully with each other, then the symbols they use must represent enough of their combined common experiences so that they can share a frame of reference on which to establish new meanings. This is imperative when it is realized that meaning cannot be communicated. Only messages are communicated. Meaning resides only in people. Meaning is brought to the symbol, the message. It is not taken from it. This puts the burden of efficient communication and much of the task of teaching on the teacher's ability to provide those kinds of messages to which students can bring, individually and in a group, the maximum amount of meaning. It is believed that audio-visual techniques can best provide many of these types of messages.

The three R's of education are famous. Less renowned are the four R's of the audio-visual educator. They stand for the Right material used in the Right way at the Right time in the Right place. Unfortunately, these "Rights" are more easily said than done. To be right implies knowledge of materials, equipment, procedures, norms, evaluation techniques, etc. that are difficult to keep up with by experts in the field, let alone busy teachers with crowded schedules and little time. Therefore, it is the obligation of school administrators to initiate and support adequate in-service teacher education programs that stress active involvement rather than passive absorption. Practice can propel teachers toward perfection only if specific goals are set and continual knowledge of progress is available.

Observations and Commendations

Arlington District

AV Coordinator: Mr. John Leffue, principal.

Budget. No definite amount was budgeted for items earmarked for instructional materials and equipment that could be termed audio-visual. Mr. Leffue indicated that most items that teachers requested and could justify were purchased.

Equipment. At present levels of usage, the equipment on hand was deemed sufficient. It comprised one 16 mm projector, two filmstrip projectors, one overhead projector, two record players, three tape recorders, globes in all rooms, and sufficient maps and some charts in those grades requiring them. Carts were available for most of the projectors.

All rooms were supplied with pull-down screens. A Grolier teaching machine and some programs were available in the remedial reading room.

Materials. General materials included a number of disk recordings in various locations and a cross indexed file of flat pictures and a drawer file of filmstrips in the teachers' room. A number of film study guides were also on hand.

Motion picture films were ordered a year in advance from the ASU cooperative at Tempe. About five arrived each week. Teachers averaged about one film per month but could order them more often if they desired. A current listing appeared in the teachers' room and on a periodically distributed mimeographed sheet. The film service was deemed poor to fair by the principal and the teachers who were interviewed. This, of course, was in large measure the fault of yearly bookings.

Room environment. Generally, there appeared to be enough chalkboard and bulletin board space throughout the school. Each room was equipped with draw drapes for darkening. Projection and recording equipment was stored in a part of a separate room. Some work area and room for various periodicals were available in the teachers' room.

Miscellaneous functions. Teachers could take one field trip per year. Several of them made use of this procedure.

When the need arose, mechanical procedures in operating equipment were demonstrated by the principal. Occasionally salespeople exhibited AV devices.

Organization of audio-visual services. Film scheduling constituted the only systematic AV procedure. Scheduling of equipment and use of such materials as flat pictures, recordings, and film strips were handled informally among the teachers.

General comments. The principal-coordinator seemed knowledgeable about the various aspects of the AV field and appeared to be willing to cooperate with his teachers in meeting their requests for equipment and materials.

An interesting experiment was observed at the Harquahala Valley School, which is a part of the Arlington District. A school-made ten-station listening center was in operation in one of the first grade classrooms at Harquahala. At the time of the survey team visit, the ten input console was accommodating three tape recorders, a record player, and a filmstrip projector. This novel device was still too new to provide definite ground for comment beyond the obvious fact that several groups of children can work under guidance simultaneously.

The school appeared to have adequate equipment and supplies. All the rooms displayed signs of interesting educational activity.

Buckeye Elementary District

AV Coordinator. Mr. Marvin E. Heard, Teacher of English and literature in the eighth grade, currently coordinates the film program. His duties do not include any other aspect of instructional materials.

Budget. The following budget figures were obtained from the *Chapple Report* of April 24, 1964.[7]

BUDGET, 1964-65	$475,000.00
1%	$ 4,750.00

FILM RENTAL, 1964-65

Arizona Film Coop., Membership Fee		$ 550.00
Arizona Film Coop. Rental Fees, Insurance, etc.		400.00
Postage, (return all films) average 12¢ per film - 449		60.00
Misc. film rental & postage		100.00
	Total	$1110.00
Equipment		2391.25
Models		72.68
Maps, globes and charts		276.15
Encyclopedias		95.70
Bulletin boards		110.84
	Total	$2946.62
	Grand Total	$4056.62

This $4056.62 represents an 8¢ or 9¢ per $100 assessed valuation. This does not reflect an 8¢ or 9¢ increase as expenditures for such things as film rental, equipment, maps, and bulletin boards were included in the 1963-64 budget to the amount of $1800.00

A per pupil expenditure of approximately $4.05 is warranted even though the state average for elementary schools is $3.32.[8]

Equipment. The following chart from the *Chapple Report*,[9] represents the Buckeye Elementary School's equipment on hand and equipment needed based on minimum standards published in *Audio-visual Instruction*, December, 1961. (See Table VI on next page).

The table should be interpreted with current and future utilization in mind. One projector not used is one too many. Ten used to capacity may be too few.

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[7] H. F. Chapple, *A Study to Improve the Audio-visual Program at the Buckeye Elementary School* (Buckeye, Arizona, April 24, 1964), p. 9.

[8] *Ibid*., p. 10

[9] *Ibid*., pp. 5-6.

TABLE VI

AUDIO-VISUAL PURCHASE RECOMMENDATIONS FOR BUCKEYE ELEMENTARY SCHOOL DISTRICT AS PER MINIMUM STANDARDS* PER 1000 PUPILS OR 40 CLASSROOMS

ITEMS	MIN. STD.*	ON HAND*	NEEDED*	ITEMS	MIN. STD.*	ON HAND*	NEEDED

* Audio-Visual Instruction Magazine, December, 1961.
* Audio-Visual Newsletter, State Department of Public Instruction, February, 1964

AUDIO-VISUAL PURCHASE RECOMMENDATIONS FOR BUCKEYE ELEMENTARY SCHOOL #33

AS PER MINIMUM STANDARDS* PER 1000 PUPILS OR 40 CLASSROOMS

ITEMS	MIN.STD.*	ON HAND*	NEEDED*
Projectors 16MM	1 per 300 pupils 4	5	0
Slide or Filmstrip Projector	1 per 300 pupils 4	5	0
Opaque Projector	1 per 600 pupils 2	2	0
Overhead Projector	1 per. bldg. 2	0	2
Tape Recorders	1 per 300 pupils 1 per 10 classrms. 4	1	3 2 this yr.
Record Players	1 per 2 classrms. gr. 1-6	3	29 8 per yr.
T.V.	1 per 56 classrms.	1 - 27"	0
Screens (classrm.)	1 per classrm. with light control-39	20	3 per yr. 19
Radios	1 per bldg. 2	1	1
Microscopes	11 for 36-40 pupils 8	0	8
Thermofax copier	2	1	1
Blackout Curtains	1 per classrm. 39	20	19 3 per yr.
Models: Kits include Eye, Ear, Touch, Smell, Taste		0	2 sets of 5 kits ea.
Pumping Heart		0	2
Thinking Man		0	2
Beating Heart		0	2
3D Human Body		0	2

* Audio-visual Instruction Magazine December, 1961.
* Audio-visual Newsletter, State Department of Public Instruction, Feb. 1964

AUDIO-VISUAL PURCHASE RECOMMENDATIONS .. Continued

ITEMS	MIN. STD.	ON HAND	NEEDED
Models Cont'd. Thinking Matter		0	2
Unit of Life		0	2
Visible Head		0	1
Motorized Allison Prop Jet		0	1
Deluxe Dissecting Kit		0	1
Trip Balance		0	1
Prisms		0	2
Telescope, 40 power		0	1
Laboratory Hot Plate		0	1

A language lab that is in an early state of development was an important aspect of the remedial reading room.

Scheduling of equipment was worked out by the teachers at the various grade levels. Some of the projectors were stored in the teachers' rooms, others were kept in classrooms.

Materials. A few film strips, slides and flat pictures were kept in the library of the upper grades school and some film strips were filed in the teachers' room of the primary school. Many of the teachers also had collections of their own materials (including recordings) in their classrooms.

Most of the films used were ordered at the close of the school year from the Arizona State University film cooperative at Tempe. However, special orders during the year occasionally were made.

Teachers averaged between one and two film showings per week. Equipment was teacher operated.

Teachers were encouraged to suggest materials and equipment they wanted. The Chapple Report listed a page and a half of these requests and the disposition made of each. It is interesting to note that in all cases deemed feasible, the requests were honored.

Room environment. Items such as bulletin board and chalkboard space, project work area, storage space, etc., varied according to the age of the various buildings. Some of the older rooms, for example, had insufficient bulletin board space. Others had excessive amounts of chalkboard area. These disproportionate distributions were evident in the Chapple Report list of teachers' requests. Seven teachers wanted extra bulletin boards and two asked for cork boards in exchange for chalkboards.

As the chart on equipment indicates, the school is progressively installing darkening curtains and screens in the classrooms not having these necessities.

Miscellaneous functions. A workshop was held at the beginning of the school year. Teachers could take field trips when they desired.

Organization of AV services. Film scheduling constituted the only systematic audio-visual procedure. Scheduling of equipment and use of materials other than films was handled informally among the teachers.

General comments. The principal gave every indication that he fully appreciated the worth of AV materials and equipment to the instructional process. Furthermore, he appeared to be well aware of the overall weaknesses as well as the strengths of his school system and was eager to consider any practical procedure that promised improvement.

Liberty School

Coordinator. Mr. Thomas L. Cambron, principal and eighth grade teacher, supervised the use of existing AV equipment and material.

Budget. No definite amount was budgeted for items earmarked for instructional materials and equipment of the audio-visual type.

Equipment. There were: one 16mm sound projector, two opaque projectors, one portable screen, one permanent screen, three record players, one tape recorder and two globes. Recently, a purchase of a number of colored prints of miscellaneous subjects, 16 x 20 inches in size was made. These were distributed two to a room. A rotation system has been planned for the future.

Materials. General materials included some disk recordings in various locations. A well indexed file of National Geographic articles derived from past issues of the magazine was stored in the library reading room.

Some maps were on stands, some in cases. A few were out-dated. There were some health and science charts.

The film program was in the charge of the librarian. Each spring from free sources she has regularly ordered approximately thirty-six films on the basis of anticipated seventh and eighth grade needs. If other grades could use them when the films arrived, they were free to do so.

Teachers could order films on their own at their own expense.

Room environment. All but eight rooms were capable of being partially darkened by conventional venetian blinds. Since most film showings were held in a room that could be darkened, lack of general facilities was not considered a drawback by the administration.

The administration, likewise, felt that although some teachers wanted more bulletin board space, space was adequate in all but two rooms.

Miscellaneous functions. Few field trips were taken due to the fact that buses could not be released. However, the eighth grade went to see the legislature in action by raising money through selling magazine subscriptions.

Organization of AV services. Film scheduling made up the only systematic AV procedure. Use of such materials as recordings, pictures and articles in the library and the two globes was handled informally by the teachers.

Palo Verde School

Coordinator. Mr. Louis F. Joslin, principal and coordinator.

Budget. No definite amount was set aside for instructional equipment and materials of the audio-visual type.

Equipment. There were three 16mm sound projectors, two film strip projectors, one lantern slide projector, one opaque projector, three projector stands, four portable screens, two permanent screens, one TV set, six classroom radios, three record players, one tape recorder, maps for those teachers needing them and two globes. Except for overhead projectors, too few globes and a few omissions of a minor nature, this equipment list more than fulfilled present levels of utilization.

Materials. Materials included approximately 50-75 disk recordings, about one-half dozen reels of magnetic tape, some health charts, 200 film strips, and a flat picture collection. The latter two, along with a group of National Geographic articles, were filed in the library.

At the beginning of the school year, teachers ordered without restrictions, their films for the coming year from the Arizona State University film cooperative. Miscellaneous materials belonging to individual teachers were stored in the various classrooms.

Room environment. Parts of Palo Verde School are quite old and reflect the infirmities of age. As is the case with other such classrooms built in earlier times, bulletin boards and work areas were at a minimum. The newer rooms fared better. Films were shown in a special room that could be darkened by pull-down shades.

Miscellaneous functions. A field trip to the zoo was taken by grades 1 through 3. The upper grades also took a trip to the Sky Harbor Airport.

Organization of Audio-visual services. Film scheduling constituted the only systematic AV procedure. Scheduling the use of equipment and materials such as flat pictures, recordings, and film strips was handled informally among the teachers.

General comments. The principal seemed quite knowledgeable about the various aspects of the AV field and appeared interested in improving the educational opportunities of his students within existing space and economic limitations.

Several of the teachers at Palo Verde School were exceptionally enthusiastic and their teaching reflected their interest.

Conclusions and Recommendations

Arlington School District

The general condition of the Arlington School in regards to its AV program is fair. It could be improved, however, without making excessive demands on either the teachers or the administration.

Nearly everyone appeared to be satisfied with the status quo with minor exceptions. Teachers were content with what they had and more significantly with what they often did not have because in many cases they possessed insufficient knowledge of new educational developments. Therefore, it is recommended that:

1. Above all, an ongoing in-service education program should be organized to specifically point up the need for instructional improvement and to involve teachers in workshop-type activities designed to improve their proficiency in developing better instructional materials and techniques. A school the size of Arlington should find this no great problem providing the need is appreciated.

2. An interested teacher who has some AV knowledge should be given time off each week so that he can coordinate the several details of a successful AV program. (See close of this section for specifics.) A busy principal should not have to be concerned with this kind of time-consuming work. This move

cannot be recommended too strongly.

3. The school's instructional equipment and materials should be organized so that they can be uniformly stored, scheduled, utilized, and maintained. This phase of an overall systematized approach would prove of value to the administration, teachers, and students at present and doubly so when utilization increases. From a listing of this kind, a budget and minimum equipment standards in keeping with Arlington's needs can be estimated. (See chart at end of AV Report.)

4. A simple catalog listing all instructional equipment, materials, and services should be compiled and placed in each teacher's hands.

5. A definite amount of money should be set aside for AV instructional materials and equipment. (See budget recommendations at close of the AV Report.)

Buckeye Elementary District

There is the potential at Buckeye for a better than average audio-visually supported instructional system. Materials and equipment have been surveyed, needs have been considered and a progressive plan for improvement has been plotted. In order to give the movement direction, the following recommendations are suggested:

1. Above all a continuing in-service education program should be organized in order to motivate teachers to want to improve their instructional practices and then to involve them in workshops designed to improve their ability to develop better instructional materials and methods.

2. A willing teacher who is acquainted with audio-visual procedures should be given some released time each week in order to coordinate the many details necessary for a successful AV program. (See Supplement H for functions of a coordinator). This person should be encouraged to join professional AV organizations, subscribe to AV publications and in general keep up with developments in the field.

3. The school's instructional equipment and materials should be organized so that they can be stored in a manner convenient to the two schools. At present the teachers' rooms appear to be fulfilling part of the job, while part is assumed by the library. A utilization study would indicate the best centrally located place for each type of item. This phase of an overall systematized approach would prove valuable to the administration, teachers and students, now and in the future when the program becomes more complex.

4. A simple loose-leafed catalog or guide listing all instructional equipment, materials and services should be compiled and given to each teacher.

5. Although teachers usually work on their materials in their own rooms, increased motivation and involvement in newer instructional media demand equipment that is best centralized. For example, transparency making and picture mounting require a duplicator and a dry mount press that should be easily accessible. In company with these should be other equipment and materials, audio-visual texts, periodicals, etc. In short, there should be a teachers' workroom that primarily is not a lounge.

6. Amount of money budgeted should be guided by suggested national figures in conformance with local needs and limitations. At present, the Buckeye School's percent and per pupil amount are minimal. (See budget recommendations in Supplement I.)

Liberty School

The following recommendations are based on a philosophy of education that stresses the importance of providing a learning environment in accordance with accepted psychological principles so that children can acquire not only verbal knowledge but also can be encouraged to develop the understanding that should accompany it.

It is suggested that:

1. An exchange of ideas among teachers and administrators be encouraged. A regular program of faculty meetings designed to improve instruction could aid this airing of views. These meetings could also serve to acquaint teachers with improved instructional equipment and materials providing a minimum amount is on hand. (See minimum standards at close of this section.)

In order to really involve teachers in a program designed to improve instruction, they must feel that a need truly exists.

A well organized in-service education program supported by a sympathetic administration can work wonders toward uncovering the need.

2. More attention should be given to the use of projected materials, both still and motion. In group situations the best way to encourage common experiences--and hence understandings--is to communicate verbal and/or pictorial materials so that all can see them at the same time.

3. Teachers on all grade levels should be encouraged to identify specific films that best fit their needs and request that these be ordered from any free or rental source that can supply them. This will necessitate more money budgeted for films which is greatly needed.

4. The excellent collection of National Geographic material in the reading room should be expanded to include other types of picture materials and the teachers should be further encouraged to utilize them.

5. More rooms should be darkened and provided with screens so that projected materials can be used to better advantage.

6. Responsibility for implementing the instructional equipment, materials and methods should be assigned to a teacher who is interested and has some AV knowledge. Some released time would insure a better program. (See Supplement G).

7. A definite amount of money should be set aside for AV instructional materials and equipment. It is not possible to provide a satisfactory program without doing so. (See Supplement I).

Palo Verde School

In view of the equipment on hand, the general condition of the AV program of the Palo Verde School was fair. However, it could be improved without making excessive demands on either the teachers or the administration.

With the above potential in mind it is recommended that:

1. The unique informal atmosphere among the teachers should form the basis for a series of in-service education workshops designed to promote an exchange of ideas on past and current instructional practices and to introduce new teaching techniques. There appeared to be enough know-how and enthusiasm among the majority of the teachers to make a program of this type quite successful.

2. More attention should be given to the physical needs of an improved AV program. For example, projected materials are much more effective when used in individually darkened classrooms. Moving children to a special room is not conducive to maximum learning. However, if the current projection room is to continue in use, it could be made more attractive.

Another factor which would aid room environment is the addition of more bulletin board space. A program of improved board arrangements could be an expected result of the in-service workshops.

3. Regimentation of equipment and materials-utilization certainly is not needed in a small school. However, the projectors, recorders, etc., should be readily accessible and in working order. The appointment of a teacher-coordinator would help here. (See suggested duties of an AV coordinator at close of this section.) A few hours of released time per week would help insure a successful job.

4. A teachers' workroom should be made a reality. If more classrooms were darkened, the present projection room could be converted wholly or partly to a place where projects could be developed, pictures mounted, etc. This need could be met with minimal expense.

5. The school should begin a collection of the latest texts dealing with instruction and should also subscribe to at least one AV publication.

6. A definite amount of money should be set aside for AV instructional materials and equipment. (See Supplement J.)

SUPPLEMENT H

THE AUDIO-VISUAL COORDINATOR

There should be a teacher designated as the Building Coordinator of Instructional Materials. He should have a reduced teaching load. If possible, he should be well-trained in the principles of audio-visual education, in the general curriculum and educational standards for the full span of grades in the school, and in the production and administration of audio-visual materials. His duties should include:

1. Acquiring knowledge of all the materials and equipment available in the school and the district. He should know all of the outside sources and the materials available from them.

2. Communicating to the teachers all of the above information pertinent to their needs using every means of communication available to him.

3. Taking responsibility for scheduling all of the materials and equipment for the teachers.

4. Receiving and returning all of the materials from sources outside his school.

5. Making himself available as an assistant to help teachers produce their own materials and to advise them as they direct student-made materials.

6. Making himself available as an instructional materials advisor to all the other teachers to help them use materials effectively.

7. Taking responsibility for maintenance and storage of all the materials and equipment of the school.

8. Taking charge of the student operators' club should one exist and helping the students learn the care and use of equipment.

9. Helping to gather the teachers' evaluations of the various materials so that he would be able to advise the audio-visual director of the needs and attitudes of the teachers.

10. Arranging for previews for the teachers.

Unquestionably, each school should have its own competent coordinator. The nature of his audio-visual duties should determine the amount of released time from other commitments. However, if a few districts find it difficult to locate qualified persons among their respective faculties, they could consider sharing one full-time coordinator. This arrangement could lead to a jointly-supported instructional materials center sometime in the future.

SUPPLEMENT I

AUDIO-VISUAL MINIMUM EQUIPMENT STANDARDS[10]

Equipment	Recommended Minimum
16 mm projector	1 per 10 teachers
2x2 and Film strip projector	1 per 6 teachers
Overhead 10 x 10 projector	1 per building or 1 from 5 to 10 teachers
Opaque projector	1 per building or 1 to 10 teachers
Record players	1 per teacher (K - 3) 1 per 2 or 3 teachers (4 - 8)

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[10] Adapted from: Hyer, Anna L., "Setting Quantitative Standards," Audio-Visual Instruction, December, 1961, p. 508.

Equipment	Recommended Minimum
Tape recorders	1 per building or 1 per 5 teachers
Screens	1 per classroom with light control or 1 tripod type per each project
Radio	1 per teacher
Television	Depends on availability of programs
Light Control	All classrooms

SUPPLEMENT J

AUDIO-VISUAL BUDGET[11]

All good things in life seem to cost money, and audio-visual service is no exception. However, a relatively adequate instructional materials program can be provided for a very small percentage of the total school budget. This is true even though many of the audio-visual materials and pieces of equipment are, individually, relatively expensive.

There is rather general agreement that a minimum audio-visual program requires an expenditure of one percent of the instructional costs of a school or school system. Three percent is recommended for an adequate service program. One percent of the instructional budget ranges upward from $3.50 per pupil. Common recommendations for a desirable program range from $4 to $6 per pupil.

It should be noted that the one-percent minimum endorsed by the Audio-Visual Commission on Public Information is recommended for materials and equipment only. These, of course, are not the only expenses of an audio-visual program. There are others such as salaries of supervisors and non-professional personnel, funds for rentals of materials, and repair and maintenance costs for materials and equipment. It is more costly to provide the same quality of audio-visual program in a small school than in a larger one. This is why many schools band together to provide certain services from a school system center or from a cooperative center serving several school districts.

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*Asterisks indicate basic collection.

GUIDANCE SERVICES

Point of View

The guidance and counseling programs surveyed were examined within the following frame of reference or objectives for elementary school counseling programs.

The major objective of the elementary school counselor preparation model to be initiated at Arizona State University has been derived through inferential processes, rather than having been gained from explicit public directives.[11]

The elementary school counselor education program has been designed to prepare the counselor to contribute toward the child's functioning maximally at the cognitive level. This is the primary, if not the only, objective of the curriculum. This is to say, that "knowing" -- knowing how to read, knowing how to meaningfully manipulate numbers, or other content -- is most frequently the educational focus; indeed, this is the current primary goal of public education.

While we have frequently heard it said that it is the 'whole child' we are concerned with in education, more often it is cognition alone which in reality receives the attention of teachers, counselors and the public.

It should be pointed out that the emphasis on 'intellectual functioning', the 'curriculum' and 'non-crisis situations' in elementary school counseling is neither new nor unique.

One of the more recent important supporters furnishing a counseling emphasis on intellectual functioning within a non-crises curriculum setting is Wrenn.[12] In The Counselor in a Changing World he has stated that, "The critical question is whether or not the elementary school will learn from the experience of the secondary school and build a counseling program which is not crisis-oriented." Further, Wrenn has explicitly formulated the contention that the school curriculums of today are "...clearly concerned with intellectual growth."[13] He has gone on to say that, "The school's primary function can be stated briefly. It is to facilitate the intellectual development of students who vary widely in intellectual ability and who vary in the relation of the intellectual to the social and emotional dimensions of their personality."[14]

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[11] Verne Faust, "Plan of Operation for a Counseling and Guidance Training Institute to be Conducted by Arizona State University," (unpublished paper submitted to the U.S. Office of Education, Counseling and Guidance Branch, 1964).

[12] Gilbert Wrenn, The Counselor in a Changing World (Washington, D.C.: American Personnel and Guidance Association).

[13] Ibid.

[14] Ibid.

The apparent impact which Wrenn's book is having on counselors in this country suggests that the posture which he has assumed in regard to intellectual activity of the student, the importance of direct curriculum involvement, and de-emphasizing a focus on crisis situations, may mean that peripheral guidance and counseling may, at last, be replaced, perhaps as early as within the coming decade. Certainly this seems to be imminently true in the case of emerging elementary school counseling programs.

If it is accepted that cognition receives the greater portion of attention in the academic setting, certain implications for educational practice, including the role of the elementary school counselor, as well as counselor educators, become apparent.

The elementary school counselor and counselor educator possess the same responsibility as teachers and other school personnel. It is assumed that all educators are to function in ways which will assist students to cognitively learn at the highest possible levels of efficiency. The elementary school counselor will hopefully possess knowledge, skills, techniques, all the professional competencies which will add to the probability that public school students will function cognitively with maximum efficiency within whatever innate potentialities they may possess.

The elementary counselor education program is more central to what is traditionally called the curriculum core of the school, where the essence of learning, of cognition, occurs. It is less peripheral, less an adjunct to the central stream of the educative process than that represented by the secondary school counselor's role. It focuses less on advisement, less on career and educational planning, less on tests, measurements and program planning. Also, less emphasis is placed on record keeping.

Further, it functions with less emphasis on direct student contact and work with individuals. While the individual is considered to be of supreme worth, it is maintained that economically his educational welfare can be effectively realized only primarily through teachers and various types of group experiences, all within a particular kind of curriculum design.

The elementary counselor program is less child-treatment oriented, and almost exclusively preventative in nature. Intervention and treatment procedures, techniques and roles are but a minor part of the total program.

Work with parents and community agencies, while a part of the program is, by comparison, of much less significance than the central focus on curriculum and the personnel responsible for developing, managing and carrying out the curriculum in action.

The elementary program focuses more on teachers and the effects of their relationships, subject-matter content, and methods on the learning apparatus of the child. It economically spends more attention on persons, such as teachers and administrators, who will affect, either directly or indirectly, large numbers of students. When working with students, it is more often economical to do so with groups, rather than individuals.

The guidance program in the elementary school should not be designed so much to heal disordered, perplexed, unproductive children, as it is to assist other school personnel in building a new world for children, in which disorder and disease have little opportunity to originate and flourish.

Observations and Commendations

Arlington School District

Arlington did not possess formal guidance services of any kind. Certain activities were carried on which were broadly interpreted by some school personnel as guidance. These activities included group testing (mental maturity and achievement) and certain classroom grouping - procedures in reading.

No guidance person was under contract. One classroom teacher was given 2:30-3:30 released time, during which he was responsible for the group testing. There was no individual testing. Teachers who wished to have assistance in interpretation of these test data could ask for this from the designated testing teacher. Reportedly, very little use of this available test interpretation was made by teachers. This is understandable, however, since the teacher responsible for testing was not a specialist in this area any more than other classroom teachers.

Group testing and ability grouping were not considered school guidance functions, but were, in fact, classroom teacher responsibilities. The only scheduled activity which might at all approach a guidance function consisted of a reported 15 or 20 minute interview of students in the spring before entering high school in the fall. Again, this was not carried out by a specialist, and was much too short and unplanned to be of substantial value. Students who had "problems" were reportedly most likely to receive help from the school nurse.

As many as six to ten students a year, with particularly perplexing difficulties, and on whom no valid intelligence quotient could be obtained, were reportedly sent to a psychometrist in a nearby school district.

Interviews with school personnel indicated that as many as one out of three children came from bilingual and biliterate homes. Many, if not the majority of these children, reportedly were functioning academically below grade level. These were in addition to malfunctioning students from non-bilingual, non-biliterate homes.

At this time, the District is not in need of a psychometrist, psychologist, nor a traditional counselor with a secondary school counselor orientation and training. The school is not in particular need of a testing person; nor for a person to give counseling for individual students.

What is greatly needed is the type of new elementary school guidance services which focus on prevention, rather than testing, diagnosis and treatment (or counseling). Such services would translate the behavior dynamics of the student body into teacher-student relationships, teaching methods, and content. Such services could provide the type of assistance and leadership which may be expected to free children to learn, irrespective of socio-economic level or home language.

Buckeye Elementary District

The District was aware of a need for, and strongly supported, a 'guidance point of view.' An openness toward guidance services existed and, on a number of counts, was backed-up by administrative support.

One full-time person was employed to function in a role defined as 'elementary school counselor'. The person held a guidance certificate from the State of Arizona and had supplemented the Masters degree and guidance certificate with periodic additional graduate work in guidance courses.

The program was supported further with a provision for ample space. One large room (classroom size) was available full time. In addition, counselor office space was provided. Filing and storage space was more than ample. Evidence of administrative guidance-oriented concern was reflected in equipment furnished to the counselor. Electronic equipment (which the counselor uses for remedial reading activities) and testing materials (Stanford-Binet; WISC, etc.) were included in the counselor's equipment. Such purchases as student furniture and shelf space again reflected a central position given to counselor activities. All space was well lighted.

The counselor's activities, which were described as those of an elementary school counselor, were, in fact, more representative of those of (1) psychometrist and (2) remedial reading teacher. While these may be considered guidance functionaries, they are not counselors.

The Reading Clinic was in operation two hours a day, four days each week. The remaining functions consisted of individual testing, test-scoring, recording, and filing data, and reporting to teachers. All the testing for the school's special education program (for the educable mentally retarded) was accomplished by the guidance person.

The guidance person worked closely with the principal, whose office is adjacent to the guidance services complex.

Buckeye Union High School District

The guidance program currently in operation in Buckeye Union High School is, when evaluated by traditional standards, outstanding. This is particularly true in view of its relatively recent status as a full-fledged, full-time guidance program. The program reflects unusually positive and agressive administrative support. Furthermore, there exists a concentrated determination to increase the range and efficiency of the program.

This report will not include the more outstanding features of the program, and the recommendations for enhancing the quality of the program should not draw attention from the already greater-than-average progress this program has made under the present administration.

Liberty School

Liberty did not have a program which could be accurately described as "guidance services." Further, there was no testing program, for mental maturity or achievement, which could be considered to represent guidance activity.

The apparent reason for an absence of guidance or counseling activities rests less with costs and more with an interpretation of such activities as extraneous and superfluous.

The surveyer is in accordance with policy toward guidance found in the Liberty District, as long as guidance in the elementary school is understood to consist of the same type of role and function of guidance personnel found in secondary schools. Indeed, to add such a person to the elementary school would be little more than a "frill".

However, the new elementary school counselor does not function as a secondary school counselor operates. He does not give tests, nor administer orientation programs, nor provide educational and career advisement, nor focus on "counseling the individual student" two or three times a school year.

The new elementary school counselor prepared under a two-year, 60 graduate hour curriculum, focuses on methods of translating his specialist knowledge into aiding the student in cognitive functions, i.e., "knowing" ---- knowing how to read, write and manipulate numbers in a meaningful way. The emphasis on cognition, on "knowing," found in the Liberty school is in excellent agreement with societal aims or objectives of education. The elementary school counselor is prepared to aid teachers and children in raising the efficiency level of cognitive functioning.

Palo Verde School

The Palo Verde School was without formal guidance services. None of the functionaries around which a guidance program might be developed -- including such an importantly basic person as a school nurse -- were employed.

The Palo Verde School is in need of a specialist's assistance in helping the middle-class and lower middle-class pseudo-efficient learner. Further, there is no program model to assist the large segment of culturally deprived children who are simply unable to utilize their intellectual potential within an average-type curriculum provided by a middle-class oriented teaching staff.

The services of a counseling specialist, trained in central nervous system operations as they relate to learning and various cultural value systems and capable of translating all of this into usable, practical behavior for teachers in the classroom are urgently needed.

Observation indicated that the District's current economic structure would negate the employment of such a specialist. The District, even though limited financially, could probably afford sharing the costs of such a counseling specialist with two or more adjacent districts.

Conclusions and Recommendations

Arlington School District

It is recommended that the Arlington District investigate the possibility of entering into agreement with one or more nearby school districts to cooperatively procure adequate guidance services personnel.

It is recommended further that, should the above recommendation be undertaken, that careful preparation and advisement be sought, both in the selection of such personnel (elementary school counselor), and in preparing current school personnel in the objectives of such a move and the role they would be undertaking.

It is recommended that the Arlington District meet with the high school administration and guidance personnel, in the development of a unified guidance approach to children. (See "General Recommendations--For All Schools" at end of this section.)

Buckeye Elementary District

1. In most cases it is generally found that an accurate role description of school personnel will sharpen and enhance the services of such persons. It is recommended that the guidance person receive a contract in which the title indicates the type of activities for which the guidance person is responsible.

2. The special training of the guidance person, along with certain administrative responsibilities should be recognized.

3. While the value of gathering test data can be of considerable use, as it is, for example, in placement of educably retarded children, in general it may be of less value than certain other guidance functions. It is recommended that if the present emphasis on testing is continued, the guidance person be encouraged to obtain further training, which would prepare for functioning beyond the level of a psychometrist, at the school psychologist's level.

4. It is recommended that the District consider a gradual re-defining and change in its present type guidance emphasis. It is recommended that in the next three years the emphasis move from diagnosis and treatment to equal or greater emphasis on "prevention." The modern, emerging professional elementary school counselor relates to the total curriculum in such a way that he provides his own unique breadth and depth of understanding of human behavior to the curriculum, which contributes toward a lessening need for testing, diagnosis and treatment.

With the exception of the very real function of qualifying children for the special education program, much of the usefulness of test data obtained on children is lost, because of the lack of in-classroom treatment and follow-up guidance built on a systematic, organized conceptualization of childhood behavior dynamics.

It is recommended that during the next three years a staff person be trained in one of three universities in the United States (including Arizona State University) equipped to train elementary school counselors. It should be noted that the elementary school counselor training program is markedly different from that given to persons holding the guidance certificate in secondary school counseling. It is also recommended that this person be given encouragement and assistance to attend such an institute by granting either a sabbatical or other leave of absence.

5. It is recommended that the new elementary school counselor program be considered as early as possible so that definite steps can be undertaken to assist the numerous bilingual, bi-literate socio-economic background children who are experiencing, as a group, considerable academic difficulty. Simply possessing test data on these children, and placing a few in remedial classes, is far from accomplishing what could be achieved via an all-out systematic program carefully prepared and organized through the new role of the elementary school counselor.

6. It is recommended that the District personnel, both administrative and guidance, explore the possibility of meeting with high school administration

and guidance personnel in an effort to develop a really effective cooperative effort. It is recommended, further, that an outside guidance consultant work with the two groups, in an effort to develop one cooperative guidance unit which will most effectively assist the welfare of children.

In summary, the Buckeye Elementary School District possessed excellent psychometric and remedial reading facilities. The administration is guidance-oriented, and supports the program on most counts. Administration and guidance-involved personnel reflected an open, aggressive and earnest professional "push" for equipping the program with modern methods, content and point of view. It is recommended that over a three year period, the testing-diagnosis-remedial orientation be gradually replaced by a program of "prevention," with the leadership primarily placed within the responsibility of an elementary school counselor. Professional effectiveness, as well as costs, could be more efficiently achieved in cooperation with one or more other school district, including the High School District.

Buckeye Union High School District

1. The counselor-student ration was much too high, exceeding, by far, ratios recommended by the American Personnel and Guidance Association. Efficiency of the present guidance program could be increased considerably with the addition of another counselor. It is recommended that under the present traditional guidance program the high school strive for a ratio of one counselor for every 250-300 students.

2. The current guidance program places excessive emphasis on testing. Administration of tests, data collecting, interpretation and reporting of data, leaves relatively little time left for the counselor to involve himself in more important and crucial ways with teachers, students and the curriculum in general. It should be noted, however, that a study of the types of students who make up the composition of the high school is needed. Such characteristics as intellectual levels, students' ability to utilize their intellects, content (reading, math, etc.) area assets and deficiencies, interest areas, drive and motivation levels, cultural pressures, etc., should be studied. However, such a study could be more profitably undertaken, with the data more likely to be used when the study is completed, if the teachers are involved in the study itself. It is advised that the administration initiate the study, and that the counselor be the director of study. Administration of tests, test scoring and categorizing of data, and reporting data in tables, graphs, and charts should be counselor-teacher responsibilities. However, administrative arrangements to provide teachers with time to complete such work should be made. The counselor should meet periodically with teachers, introduce the tests and inventories to be used, methods of scoring, and give assistance in interpretation. The counselor should act as discussion leader in efforts designed to translate these data meaningfully into curriculum construction and teaching.

3. It is recommended that efforts be made to coordinate guidance activities of the elementary schools with those of the high school. "The most effective high school guidance program is an effective elementary school guidance program."

4. It is recommended that efforts be undertaken to move from a traditional high school guidance program (of testing, orientation, career days and career planning) to a more modern, professional counseling program (in which the counselor is thoroughly familiarized with the mental apparatus -- central nervous

system operations -- and can assist teachers with a translation of such knowledge into everyday classroom teaching behavior). It is advised that such training be obtained by present counseling personnel. It is further advised that the administration and guidance personnel invite consultation regarding the new model for counselor training, and the nature of this role in the public school.

5. It is recommended that the high school recognize that it presently has in operation a 'guidance program' (and, again, by traditional standards, an excellent one), but that a counseling program is practically non-existent. In a real sense, the school is employing a 'guidance person' but not a 'counselor.'

If the emphasis of the guidance program were to be moved from testing, program planning, career days, and such other traditionally guidance activities, freeing the guidance person to become a counselor, the number of students would still be excessive. Even were a ratio of one counselor to every 250 students to be maintained, serious limitations would inhibit the counselors' effectiveness. Modern trained counselors are working more with (a) groups of teachers (b) individual teachers (c) and in contributing their own specialized knowledge of human behavior in appropriate places for curriculum design. Economically, the counselor can be much less expensive and considerably more effective when he works with teachers who are each, in turn, responsible for thirty or more students.

Steps should be taken -- preferably with the assistance of professional consultant services -- to coordinate the counselor-curriculum activities of the high school and associated elementary schools.

Summary of areas requiring attention.

1. Move from simple guidance activities into a counseling program.

2. Do not over-emphasize testing, program planning, career days.

3. Share much of the testing program responsibility (administration, interpreting of data) with teachers, with the counselor placed in leadership and resource roles.

4. Consider the employment of professional consultant assistance in planning and developing the guidance program.

5. Encourage the present guidance person to up-date his counselor preparation through the granting of sabbatical or other leave.

6. Consider the employment of an additional counselor in the near future.

7. With appropriate modern training the counselor should function effectively in the following roles:

   (a) Working with groups of teachers.
   (b) Working with individual teachers contributing his unique knowledge and training in human behavior to curriculum design and implementation.
   (c) Working with individual administrators.
   (d) Working with groups of students.
   (e) Working with individual students.

8. Involve teachers in a study, through tests and inventories, of the

entire composition of the student population. The counselor should be a resource person and director of such a study.

9. The counselor should contribute his unique knowledge of how learning occurs to the development of a curriculum which will meet the needs of all ability groups.

Areas recommended for continued emphasis.

1. Continued superior administrative support of a guidance orientation to the curriculum.

2. Continued support of guidance personnel, particularly during the future period of gradual and orderly program change.

3. Continued administrative emphasis on placing the welfare of students above other administrative responsibilities.

4. Continued interest on the part of the currently employed guidance person to actively participate in professional meetings and other growth and educative experiences.

Liberty School

1. It is recommended that the administrative personnel and faculty investigate the desirability of procuring guidance consultant services. The elementary guidance program is quite different from that in the high school. Such a service could be of immeasurable assistance in positively modifying the under-achievement of lower-socio-economic children, bilingual children, and psuedo-efficient learners.

2. It is recommended that the District enter into a cooperative arrangement with one or more adjacent districts. Such an arrangement would reduce the costs of making guidance services available. In fact, it has been found that a guidance consultant assigned to more than one district can be more effective in his function than one assigned to a single school.

3. It is recommended that the District enter into a cooperative arrangement with the High School, so that unified efforts and a closer working relationship can aid students, both in their elementary school preparation and in the secondary school experience.

Palo Verde School

It is recommended that the Palo Verde District investigate the feasibility of working out a cooperative arrangement with adjacent school districts in securing and utilizing the services of an elementary school counseling specialist.

It should be noted that the counseling specialist needed by the Palo Verde District should in no way approximate the current, traditional secondary school counselor, nor a school psychologist or psychometrist. Rather the counselor should be one with the most modern counselor education available, with emphasis in central nervous system operations translated into the curriculum.

Such a specialist and the role he would play in the Palo Verde School should be secured only after careful, long-range planning and preparation. (See "General Recommendations-For All Schools" at end of this section and also see "Recapitulation and Concluding Statement" at the end of the report.)

General Recommendations-For All Schools

Gross discrepancies in professional guidance undertakings appear throughout the area. In some schools guidance and counselor activities were practically non-existent. In other schools, excellent guidance services were already in operation. It is recommended that a central coordinating committee, representing the elementary schools and high school, be organized, with 'outside' leadership provided through the early stages of the committee's development.

This counselor coordinating committee should explore several areas, including the following:

1. The contributions which modern, qualified counselors can contribute to students, teachers and the curriculum as a whole.

2. Costs of employing such counselors should be investigated, particularly in relation to a coordinated program to which the participating schools would contribute on a percentage basis.

   (a) A coordinated program of continuity from the primary grades on through high school is important.
   (b) It is recommended that this joining of personnel should be accomplished through a series of in-service meetings (at least once every three weeks for at least one academic winter) with some consultant assistance.
   (c) In addition, it is recommended that psychological, testing and remedial services be utilized, although de-emphasized, until the elementary school counseling program, based on prevention, becomes well established.

3. A major area which deserves the particular attention of counselors includes the impact of various bilingual and lower economic cultures on the learning apparatus, and specific content and methods which free the learning machinery to function efficiently. (In spite of the numbers of culturally disadvantaged children present in the schools, many - if not all - could be reading well above present performance levels if the necessary specialized assistance becomes available to classroom teachers.)

4. It is recommended that the elementary districts seek to establish a cooperative elementary school counseling program. Such a venture would provide several advantages:

   (a) As the counseling program grows, a central administration of guidance activities would prevent duplication of administrative and secretarial activities.
   (b) A cooperative counseling program would greatly enhance the types of functions which counselors could undertake. Much of the new elementary school counselor's work is with teachers. Certain types of counselor-teacher activities are more effective when the counselor is not identified with one particular school, and when the counselor is not in such competitive roles

as relating at school functions, staff meetings and the like.

5. A cooperative program would allow for economic feasibility not only to employ a counselor, but to share psychometric or psychological services among two or more districts, for those fewer children who do not respond to the counseling program.

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PUPIL PERSONNEL

Introduction

Information concerning pupil personnel is the starting point for approaching the total task of education. Schools are for pupils, classes are for pupils, the schools serve their pupils in the public interest; therefore, schools must serve the kinds of pupils enrolled in them. Decisions concerning program, curriculum, buildings, finance, and staff are all dependent upon knowing the pupil personnel of the district.

This section of the survey report is concerned with age-grade patterns pupil promotion and nonpromotion, test results, and pupil population projections.

Age-Grade Patterns

Point of View

Age and grade have provided the most traditional basis for assignment of pupils in our school systems. Youngsters in Arizona have not been treated differently. They have customarily started in the first grade between the ages of five years eight months and six years eight months and normally they have completed a grade each year. However, two factors in Arizona contribute to overageness of pupils. First, the Arizona Revised Statutes provide that persons responsible for the custody of a child, in most cases, must enroll the child in a public or private school during regular sessions from ages eight to sixteen, or until he graduates from the eighth grade. Pupils may deviate from the normal pattern by enrolling late in the first grade, or because of retention due to extended absence, poor habits, or the need for compensatory education. In a study conducted by the Chicago Public Schools, compensatory education was referred to as:

> ...educational programs, practices, techniques, and projects designed to overcome the deficiencies of children from culturally disadvantaged homes to enable them to fulfill the fundamental purposes of education. It is recognized that the groups being studied are not lacking in culture, but have a culture which is different from the middle class values and more prevailing in our urban society today. This dissimilarity is accentuated by unpromising educational and low socio-economic backgrounds.[15]

Many pupils in elementary districts located within the Buckeye Union High School District were in need of compensatory education and had difficulty in achieving success in the work allotted to the first grade during one school year. If schools plan to continue to assign on age and grade, efforts should be made by the schools to reduce the stigma attached to retention. A sounder theoretical basis is that each child should experience continuous success and progress. The organization of learning into smaller flexible units frequently allows each pupil to proceed at his own rate. The development of "ungradedness" and "advanced placement" represent attempts by elementary and secondary levels to provide for continuous progress.

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[15] Chicago Public Schools, Compensatory Education in the Chicago Public Schools. Study Report Number Four, 1964 Series (Chicago: Board of Education of the city of Chicago, 1964), p. 1-2.

With the present system of age and grade assignments, school staffs should study carefully any overageness in each grade. In order to develop the best educational program, Conant suggests that no pupil should be held back for more than two years in the first eight grades.[16]

Observations and Commendations

Arlington District

Approximately 13 per cent of the pupil population was two years or more over the age normally expected for their grade. Thirty-eight per cent of the total population was overaged to some extent. The distribution of pupils according to age and grade is contained in Table VII.

Buckeye Elementary District

Table VIII contains the age-grade data for Buckeye elementary schools. Only six pupils deviated by more than two years from the normal age for their respective grades. Twenty-three per cent of the total pupil population was overage for their grade at the time of the investigation.

Liberty School

Complete age-grade data for 1963-64 are presented in Table IX. Problems relative to underageness did not appear to exist. Approximately 10 per cent of the pupil population deviated by two or more years while two per cent deviated by more than two years. Twenty-nine per cent of the total pupil population was over the normal age expected for the grade level.

Palo Verde School

Data concerning age and grade of pupils appear in Table X. The greatest amount of overageness (58 per cent) at Palo Verde School appeared in the eighth grade. Forty-nine per cent of the first grade was over the age normally expected. Approximately a four-year age span appeared in the first grade in 1963-64.

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[16] James B. Conant, Recommendations for Education in the Junior High School Years (Princeton, New Jersey: Educational Testing Service, 1960), p. 28.

TABLE VII

DISTRIBUTION OF PUPILS ACCORDING TO AGE AND GRADE

ARLINGTON DISTRICT

1963 - 64

	GRADE LEVEL								
AGE	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH	SEVENTH	EIGHTH	TOTAL
5	21								21
6	40	7							47
7	18	29	3						50
8	1	13	14						28
9	1	6	10	17	4				38
10	1	1	1	9	17	7			36
11				5	14	20	6		45
12	1				4	3	9	6	23
13			1			8	13	15	37
14				1	2	1	2	9	15
15							4	3	7
16								1	1
TOTAL	83	56	29	32	41	39	34	34	348
Normal	61	36	17	17	21	27	15	21	215
Under	0	0	0	0	0	0	0	0	0
Over	22	20	12	15	20	12	19	13	133
% Normal	73	64	59	53	51	69	44	62	62
% Under	0	0	0	0	0	0	0	0	0
% Over	27	36	41	47	49	31	56	38	38

TABLE VIII

DISTRIBUTION OF PUPILS ACCORDING TO AGE AND GRADE

BUCKEYE ELEMENTARY DISTRICT

1963 - 64

		GRADE LEVEL								
AGE	SP.ED.	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH	SEVENTH	EIGHTH	TOTAL
5		40								40
6		124	23							147
7	1	19	99	25						144
8	1	2	18	73	31					125
9			5	34	78	11				128
10	2			3	20	94	23			142
11	1				8	34	68	28		139
12	2				2	11	30	65	23	133
13	1						12	19	64	96
14						1	2	7	18	28
15									10	10
16									1	1
TOTAL	8	185	145	135	139	151	135	119	116	1133
Normal		164	122	98	109	105	91	93	87	869
Under		0	0	0	0	0	0	0	0	
Over		21	23	37	30	46	44	26	29	256
% Normal		89	84	72	78	70	67	78	75	77
% Under		0	0	0	0	0	0	0	0	0
% Over		11	16	28	22	30	33	22	25	23

TABLE IX

DISTRIBUTION OF PUPILS ACCORDING TO AGE AND GRADE

LIBERTY SCHOOL

1963 - 64

	GRADE LEVEL								
AGE	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH	SEVENTH	EIGHTH	TOTAL
5	14								14
6	38	11							49
7	8	44	12						64
8	1	11	20	6					38
9		6	11	30	12				59
10		1	3	11	18	8			41
11				5	12	27	6		50
12					6	7	27	11	51
13				1	1	3	9	18	32
14							5	11	16
15						1	4	4	9
16									
TOTAL	61	73	46	53	49	46	51	44	423
Normal	52	55	32	36	30	35	33	29	302
Under	0	0							
Over	9	18	14	17	19	11	18	15	121
% Normal	85	75	70	68	61	76	65	66	71
% Under	0	0	0	0	0	0	0	0	0
% Over	15	25	30	32	39	24	35	34	29

TABLE X

DISTRIBUTION OF PUPILS ACCORDING TO AGE AND GRADE

PALO VERDE SCHOOL

1963 - 64

	GRADE LEVEL								
AGE	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH	SEVENTH	EIGHTH	TOTAL
5									
6	25								25
7	20	20	2						42
8	2	4	19	3					28
9	2	1	4	11	3				21
10		2	1	6	8	5			22
11				3	4	9			16
12				2	1	7	9	1	19
13						1	1	7	10
14							4	5	9
15							1	3	4
16								3	3
TOTAL	49	27	26	25	16	22	15	19	199
Normal	25	20	21	14	11	14	9	8	122
Under	0	0	0	0	0	0	0	0	0
Over	24	7	5	11	5	8	6	11	77
% Normal	51	74	81	56	69	63	60	42	61
% Under	0	0	0	0	0	0	0	0	0
% Over	49	26	19	44	31	37	40	58	39

Buckeye Union High School District

The percentage of over-age students decreased from the sophomore to the senior year. Data concerning age and grade of pupils appear in Table XI. Seven per cent of the high school population was two years or more over age compared with normal expectations. For the first time in the course of the survey some students were found to be under the age normally expected.

Conclusions and Recommendations

Arlington District

The assignment of pupils in grades 3, 4, 5, and 7 in 1963-64 should be carefully studied since the percentage of overage pupils in those grades ranged from 41 to 56 per cent. Total promotion and placement procedures should also be studied.

Buckeye Elementary District

A study should be conducted to determine the causes of the overagedness in grades 5 and 6. Normally, overagedness will increase until the eighth grade and will decrease thereafter due to dropouts and the end of compulsory attendance.

Liberty School

A careful study of the overage pupils should be made by the administration and faculty to determine if the program is meeting the needs of the overage pupils. Until a careful study of the "ungraded" approach is made, the school should continue with its policy of advancing pupils regularly and retaining only when it would appear to serve the best interests of the child in the primary grades.

TABLE XI

DISTRIBUTION OF PUPILS ACCORDING TO AGE AND GRADE

BUCKEYE UNION HIGH SCHOOL DISTRICT

1963 - 64

	GRADE LEVEL				
AGE	NINTH	TENTH	ELEVENTH	TWELFTH	TOTAL
12	2				2
13	44	1			45
14	98	26	2		126
15	33	94	25		152
16	16	26	75	20	137
17	4	13	21	77	115
18		1	2	19	22
19			2	6	8
20					
TOTAL	197	161	127	122	607
Normal	142	120	100	97	459
Under	2	1	2	0	5
Over	53	40	25	25	143
% Normal	72	74	79	80	76
% Under	1	1	2		1
% Over	27	25	19	20	23

Palo Verde School

An analysis of the age and grade data should be made with special attention given to the over-age pupil to determine the best educational program for each child so identified. Careful attention should be given to plans for individualized instruction; such a range of ages and ability requires nothing less for educational success.

Buckeye Union High School

An analysis of the dropouts of the high school should be conducted to determine if over-ageness was a factor. The freshman class's variance of six years should be studied through the remaining three years of high school to determine to what extent the program is successfully meeting the needs of these students.

Maricopa County

Table XII contains age and grade data for the County for 1963-64. The elementary school districts should compare their age and grade distributions to the distribution within the County. The total per cent of over-ageness in the elementary districts involved in the study ranged from 23 per cent at Buckeye to 39 per cent at Palo Verde as compared to 15 per cent for the County. The County per cent of over-ageness increased from the first to the eighth grade, which is normally expected, but in this study the over-ageness factor peaked usually at the fifth grade or a grade either way. A careful comparison of the age and grade distributions suggests that the elementary districts involved in the study are not typical. School district personnel were aware of the problems and were attempting to implement programs in compensatory education. Continuous development and evaluation of the educational programs of over-age pupils is an absolute necessity if the schools are to meet the educational needs of their pupils and their communities.

TABLE XII

DISTRIBUTION OF PUPILS ACCORDING TO AGE AND GRADE

MARICOPA COUNTY ELEMENTARY DISTRICT

1963 - 64

		GRADE LEVEL								
AGE	SP.ED.	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH	SEVENTH	EIGHTH	TOTAL
5		6797	270							7067
6		14198	4767	93	3					19061
7		1889	11867	3938	73					17767
8		199	2016	11764	3763	36				17778
9		41	283	2290	11422	3455	25			17516
10		10	75	349	2235	11023	3308	15		17015
11		4	9	69	450	2337	10547	3342	22	16780
12		3		21	95	473	2249	9940	3023	15804
13		1	2	7	23	113	475	2423	9426	12470
14		1		2	6	30	103	517	2288	2947
15					1	7	19	142	604	773
16		1		1		2	4	19	113	140
TOTAL		23441	19289	18534	18071	17476	16730	16398	15476	145415
Normal		20995	16634	15702	15185	14478	13855	13282	12449	122580
Under		294	270	93	76	36	25	15	22	831
Over		2149	2385	2739	2810	2962	2850	3101	3005	22001
% Normal		90	86	85	84	83	83	81	80	84
% Under		1	2	0	0	0	0	0	0	1
% Over		9	12	15	16	17	17	19	20	15

Pupil Promotion and Nonpromotion

Point of View

All parents want their children to succeed; however, pupils differ in their backgrounds of the experience and abilities to learn from organized school activities. Thus teachers, administrators and parents are sometimes compelled to make judgments concerning the nonpromotion of pupils in order to provide more effective learning environments for individual children. The Research Division of the National Education Association outlined the current thought on pupil failure and nonpromotion at the elementary grades:

1. Since 1900 there has been a decrease in the rate of pupil failure leading to nonpromotion or repetition of a course of study.

2. Threats of failure do not necessarily motivate children to work harder.

3. Nonpromotion does not always increase the mastery of the subject matter.

4. The fact that boys fail more often than girls, despite insignificant differences in scores on intelligence and achievement tests, indicates that promotion is based to some extent on factors other than academic achievement, such as deportment and neatness of written work.

5. Failure of an individual pupil is usually caused by a number of factors, some beyond his control.[17]

Grades and promotions are of interest to pupils, parents, teachers, and administrators and many times can create a relationship that is emotionally charged. Continuous failure accompanying a child throughout his school career may have serious effects on the child's personality. Attempts have been made (1) to bring children up to the "required" standards of achievement and (2) to discover what a child can do and then to adapt the curriculum and teaching to his capacities. A common criticism is that pupils are not making the progress of which they are capable; however, schools sometimes establish inappropriate goals for children to achieve, and then have difficulty in measuring the degree of accomplishment.

The promotion of students by districts, by grades, for the most recent five year period has been studied; the findings were used to document the ensuing reports.

Observations and Commendations

Arlington District

Table XIII contains promotion data on Arlington School District pupils for the five year period, 1959-64. A high percentage of pupils (32.9 per cent) were retained in Grade 1 during the five year period. The policy employed was apparently followed consistently; the variance in the per cent of the nonpromoted ranged from 43 to 28 per cent. Excluding the first grade only one per cent of the pupil population was not promoted in the remaining grades. Nonpromotions for the five year period approximated eight per cent of the pupils enrolled at the end of school.

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[17] Research Division, National Education Association, "Pupil Failure and Nonpromotion," Research Bulletin, Vol. XXXVII, No. 1, (February, 1959), pp. 16.

Buckeye Elementary District

The distribution of the promotion of pupils by grades for the five year period, 1959-64, in the Buckeye Elementary District appears in Table XIV. The per cent of nonpromotions (six per cent) approximated the national average of five per cent in 1949.[18] The peak year for nonpromotion occurred in Grade 1.

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[18] Ibid., p. 16.

TABLE XIII

PROMOTION OF STUDENTS BY GRADES
FOR THE FIVE-YEAR PERIOD 1959-64

ARLINGTON DISTRICT

	1959-60		1960-61		1961-62		1962-63		1963-64		Totals	
Grade	P	N	P	N	P	N	P	N	P	N	P	N
1	19	8	22	12	21	16	47	22	46	18	155	76
2	36	3	24	2	18	-	28	1	55	0	161	6
3	22	2	31	1	24	-	26	2	30		133	5
4	30		21	-	23	-	28	2	34		136	2
5	25		30	1	19	-	30	1	36		140	2
6	21		22		24	-	26		33		126	0
7	17		15		24	-	31		30	1	117	1
8	15		17		13	-	23		32		100	0
TOTAL	185	13	182	16	166	16	239	28	296	19	1068	92

P = Promotions

N = Non-Promotions

TABLE XIV

PROMOTION OF STUDENTS BY GRADES FOR THE FIVE-YEAR PERIOD 1959-64

BUCKEYE ELEMENTARY DISTRICT

	1959-60		1960-61		1961-62		1962-63		1963-64		Totals	
Grade	P	N	P	N	P	N	P	N	P	N	P	N
1	126	11	129	16	122	19	119	22	136	22	632	90
2	116	1	110	7	129	7	124	10	121	6	600	31
3	102	9	128	5	107	9	117	11	112	5	566	39
4	111	6	102	8	119	6	126	5	114	4	572	29
5	112	5	100	6	113	3	114	6	134	6	573	26
6	112	4	106	7	96	2	105	2	113	1	532	16
7	92	5	100	7	107	7	110	2	108	2	517	23
8	69	8	82	7	104	4	110	0	101	-	466	19
TOTAL	840	49	857	63	897	57	928	64	942	52	4448	273

P = Promotions

N = Non-Promotions

Liberty School

Table XV shows the distribution of promotion and nonpromotion in the Liberty School for the past five years. The peak grade for nonpromotions was Grade 7. Eighteen per cent of the pupils enrolled in Grade 7 at the end of the school year for the five year period was not promoted. Approximately 13 per cent of the pupils in Grade 2 was not promoted over the five year period. Nonpromotions ranged from zero in Grade 4, 1960-61, to 32.6 per cent in Grade 7, 1963-64 which was the same class.

Palo Verde School

Promotions and nonpromotions for the Palo Verde District, 1959-64, are presented in Table XVI. Nonpromotions in grade 1 ranged during the five year period from 9.7 per cent (1963-64), to 40.6 per cent in 1962-63. Approximately 87 per cent of the nonpromotions occurred in the primary grades. The promotion procedures for grades 4-8 appeared to have functioned consistently for the period of the study.

Buckeye Union High School District

It was difficult to obtain adequate reliable data concerning nonpromotions in high school due to the system of credits and bookkeeping procedures. A recent study of the ratio of failures in high school showed a range from 0.02 per cent to 10.6 per cent. Table XVII contains the nonpromotion data of Buckeye Union High School. Nonpromotions by grades ranged from zero in the sophomore class, 1960-61 to 11.5 per cent in the senior class of 1959-60. Nonpromotions (6.14 per cent) were the highest in the senior class for the five year period and lowest in the freshmen class (2.4 per cent). The total nonpromotions for 1959-60 deviated significantly from the succeeding years.

TABLE XV

PROMOTION OF STUDENTS BY GRADES FOR THE FIVE-YEAR PERIOD 1959-64

LIBERTY SCHOOL

	1959-60		1960-61		1961-62		1962-63		1963-64		Totals	
Grade	P	N	P	N	P	N	P	N	P	N	P	N
1	36	3	50	4	42	3	57	7	45	7	230	24
2	36	5	35	4	52	7	42	6	54	12	219	34
3	35	2	32	2	40	3	48	1	40	4	195	12
4	33	4	40	-	41	4	37	7	44	3	195	18
5	30	2	35	1	40	2	50	4	43	10	198	19
6	36	2	34	2	34	2	44	1	46	1	194	8
7	23	5	39	7	35	5	37	5	29	14	163	36
8	36	1	28	4	34	2	38	1	31	5	167	13
TOTAL	265	24	293	24	318	28	353	32	332	56	1561	164

P = Promotions

N = Non-Promotions

TABLE XVI

PROMOTION OF STUDENTS BY GRADES FOR THE FIVE-YEAR PERIOD 1959-64

PALO VERDE SCHOOL

	1959-60		1960-61		1961-62		1962-63		1963-64		Totals	
Grade	P	N	P	N	P	N	P	N	P	N	P	N
1	25	5	18	7	25	6	19	13	28	3	115	34
2	18	2	19	1	23	-	25	0	25	4	110	7
3	14	1	22		16	8	19	2	23	2	94	13
4	19	0	12	3	27	0	15	0	20	1	93	4
5	23	1	19		19	-	25	1	19		105	2
6	14	0	27		22	-	16	1	22		101	1
7	18	0	15		23	-	21	-	14		91	0
8	16	0	16	1	16	-	22	-	21		91	1
TOTAL	147	9	148	12	171	14	162	17	172	10	800	62

P = Promotions

N = Non-Promotions

TABLE XVII

PROMOTION OF STUDENTS BY GRADES FOR THE FIVE-YEAR PERIOD 1959-64

BUCKEYE UNION HIGH SCHOOL

	1959-60		1960-61		1961-62		1962-63		1963-64		Totals	
Grade	P	N	P	N	P	N	P	N	P	N	P	N
9	93	5	140	1	137	4	147	3	161	4	678	17
10	84	9	91		122	1	123	4	127	4	547	18
11	74	5	84	2	80	3	120	1	108	1	466	12
12	54	7	65	4	65	3	77	3	106	7	367	24
TOTAL	305	26	380	7	404	11	467	11	502	16	2058	71

P = Promotions

N = Non-Promotions

Recommendations and Conclusions

Arlington District

The administration and faculty were aware of many problems related to compensatory education in the district, the survey staff recommends that a careful and continuous study be conducted of the pupils who were not promoted in the first grade, particularly noting achievement in later grades.

Buckeye Elementary District

The greatest number of retentions were in the first three grades. This practice is educationally sound inasmuch as the basic skills of reading and number concepts are developed in the primary grades. Retentions in grades 7 and 8 decreased during the last two years. It is recommended that further study be devoted to nonpromotions in grades 4-8 with particular attention devoted to helping the pupils to negotiate a successful transition from the eighth to the ninth grade.

Liberty School

Normally the greatest number of nonpromotions occur in grade 1. A careful study of the progress of the grade 8 class of 1964-65 should be conducted. The increase in nonpromotion in 1963-64 over the previous years does not necessarily mean that a radical shift was made in the promotion procedures of the school, but it does indicate the need for continuous study of promotion policy, especially as the policy affects pupils and their achievement.

Palo Verde School

Follow-up studies should be conducted on pupils who were not promoted to determine the effect of the nonpromotion on each child. In addition, a continuing study of promotion procedures and results should be conducted by the faculty from year to year.

Buckeye Union High School District

Case studies of selected students who were not promoted should be conducted to determine the effects of nonpromotion. Follow-up studies of students who drop out of school should also be conducted to provide additional information concerning the effect of failure on students.

Test Results

Point of View

Proficiency tests attempt to measure present performance in some task and thereby can be considered a sample of the criterion. Past achievement is one of the best predictors of future academic achievement. The possible advantages of proficiency tests may be summarized as follows:

1. Provides a basis for revising curriculum and improving instruction.

2. Permits an analysis of grades and promotion procedures.

3. Aides in understanding youngsters and the problems that they will or have faced.

4. Improves motivation of student and instructor by developing rivalry on a fair standard, the results of proficiency tests.

5. Aids in holding instruction relatively constant in schools. Neglected and overemphasized topics may be noted from proficiency test results.

6. Helps break down the "time serving" concept of education. The time served or the courses completed is no index of the education received. Tests are being given increased weight as evidence of educational development.[19]

The same tests were not administered in all the elementary districts and the only "common" test was the Iowa Test of Educational Development (ITED) administered to freshmen at Buckeye Union High School. Cronbach describes the test as follows:

> An eight hour battery of nine tests designed to measure general educational development in skills and thinking abilities, regardless of particular courses or content studied. Scores include understanding of basic social concepts, interpretation of reading materials in social studies, use of sources of information, quantitative thinking, correctness and appropriateness of expression, etc. The tests are carefully normed; reliabilities range from .81 to .94. The battery predicts college grades with validity near .60, this high validity being attributable in part to the length of the battery. "Secure" versions of ITED, of various lengths, are used in scholarship competitions, and in the American College Testing Program, which obtains information on high school seniors for use by college admissions officers.[20]

Dr. J. Murry Lee in The Fifth Mental Measurements Yearbook rated the ITED "excellent". He indicated two major uses of the test.

> A major use of the tests is to reveal the pattern of the individual student's development and to show growth in this development from year to year. This information would provide a basis for adapting instruction and guidance to meet the measured needs of each individual. The tests also give a good prediction of probable college success. A second major use is to provide the faculty with a more dependable and objective basis for evaluating important phases of the total educational offering of the school. With increasing pressures on the high school, it is important that there be objective data available as to individual progress and the attainment of the total group.[21]

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[19] Lee J. Cronbach, Essentials of Psychological Testing. Second Edition New York: Harper and Brothers, 1960, pp. 362-63.

[20] Ibid., pp. 383-84.

[21] Oscar Krisen Buros, The Fifth Mental Measurements Yearbook, New Jersey: The Gryphon Press, 1959, p. 17.

Observations and Commendations

Table XVIII presents the ITED results in percentile scores and rank by elementary school districts.

Recommendations and Conclusions

The administration and faculty of each school district should study the data contained in Table XVIII and other data contained in the cummulative records of each individual and the eighth grade class of 1964 relative to the advantages of proficiency tests listed earlier in this section. Special attention should be given to the test results as a basis for revising curriculum and improving instruction.

Pupil Population Projections

Introduction

Buckeye Union High School District has experienced a 54 per cent increase in pupil population in Grades 1-12 and a 72 per cent increase in the student population of Grades 9-12, during the ten years of 1954-64. Some areas of the District have a potential for a significant growth affecting the future plans of the District.

This section of the survey has been prepared for the Board of Education to present the pupil population projections of the elementary districts and the high school district to assist the administration and the Board in planning for the District's needs in the future.

The boundaries of the Buckeye Union High School District incorporate the Liberty School District Number 25, Buckeye School District Number 33, Arlington School District Number 47, and Palo Verde School District Number 49. The legal descriptions of the districts follow:

TABLE XVIII

IOWA TESTS OF EDUCATIONAL DEVELOPMENT RESULTS OF BUCKEYE UNION HIGH SCHOOL DISTRICT FRESHMEN BY ELEMENTARY DISTRICT, 1964-65

		1		2		3		4		5		6		7		8		9		10	
	N	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R	%	R
LIBERTY	24	56.6	1	53.3	2	59.7	1	53.8	5	49.9	5	62.2	1	56.2	3	54.0	1	58.5	1	49.7	1
BUCKEYE	87	51.4	5	53.7	1	53.8	5	56.2	2	52.4	3	57.5	4	53.0	5	46.7	4	53.8	5	44.5	2
ARLINGTON	23	53.7	2	49.8	5	54.4	4	54.7	3	51.1	4	56.5	5	56.6	1	49.1	3	54.3	4	47.3	2
PALO VERDE	14	40.8	6	38.4	6	44.7	6	34.9	6	35.1	6	48.3	6	44.5	6	39.7	6	38.4	6	28.3	6
OUT OF STATE	8	53.0	3	51.3	3	55.1	3	58.7	1	62.6	1	61.0	1	54.3	4	44.3	5	54.7	3	43.2	5
IN STATE*	15	52.8	4	50.4	4	55.2	2	54.7	4	57.6	2	57.6	3	56.3	2	51.6	2	55.9	2	47.0	3

1 = Background Social Studies

2 = Background Nat. Science

3 = Correlation of Expression

4 = Quantitative Thinking

5 = Reading Social Studies

6 = Reading Natural Science

7 = Reading Literature

8 = General Vocabulary

9 = Composite

10 = Use of Sources

N = Number of Students

% = Percentile

R = Rank

ARLINGTON DISTRICT

Beginning at the NW corner of Section 6, T2N, R10W; thence 18 miles East to the NE corner of Section 1, T2N, R8W; thence South 12 miles to the SE corner of Section 36, T1N, R8W; thence 16½ miles East to the N¼ corner Section 2, T1S, R5W; thence South 1 mile to the S¼ corner Section 2; thence East ½ mile to the NE corner Section 11; thence South 3/4 miles to the SW corner NW¼, SW¼, Section 12, T1S, R5W; thence East ¼ mile to the SE corner NE¼, SE¼, Section 12; thence South ¼ mile to the SW corner, SE¼, SW¼, Section 12; thence East to the Hassayampa River; thence Southeasterly along the Hassayampa River to the South Section line Section 13; thence East to the NE corner Section 24, T1S, R5W; thence South 1 mile to the SE corner Section 24; thence East ½ mile to the S¼ corner Section 19, T1S, R4W; thence North ½ mile to center Section 19; thence East 1½ miles to the East ¼ corner Section 20, T1S, R4W; thence South 2½ miles to the SE corner Section 32, T1S, R5W; thence West to the NE corner of Section 5, T2S, R4W; thence South 12 miles to the SE corner of Section 32, T3S, R4W; thence West to the SW corner of Section 31, T3S, R5W; thence North to the NW corner of Section 6, T3S, R5W; thence West 30 miles along the Section lines to the SW corner of Section 31, T2S, R10W; thence North 24 miles to the point of beginning.

BUCKEYE ELEMENTARY DISTRICT

Beginning at the Northwest corner of Section 1, Township 1 North, Range 4 West; and running South three miles to the Southwest corner of Section 13, Township 1 North, Range 4 West; thence West one-half mile; thence South six miles to the S¼ corner Section 14, 1S, 4W; thence West ½ mile to the NW corner Section 23; thence South ½ mile; thence West 2 miles to the W¼ corner Section 21; thence South 2½ miles to the SW corner Section 33, 1S, 4W; thence West to the NW corner Section 4, 2S, 4W; thence South 12 miles to the SW corner Section 33 Township 3 South, Range 4 West; thence East to the Southeast corner of Section 36, Township 3 South, Range 3 West; thence North to the Northeast corner of Section 1, Township 2 South, Range 3 West; thence West to the Southeast corner of Section 32, Township 1 South, Range 3 West; thence North 4 miles to the NW corner Section 16; thence E 2½ miles to S¼ corner Section 11; thence North eight miles along the median line to the N¼ corner Section 2, Township 1 North, Range 3 West; thence West five and one-half miles to the place of beginning.

LIBERTY DISTRICT

Beginning at the Northeast corner of Section 3, Township 1 North, Range 2 West, and running thence West to the median line of Section 2, Township 1 North, Range 3 West; thence South eight miles to the S¼ corner Section 11, 1S, 3W; thence West 2½ miles to the NW corner Section 16; thence South to the Southwest corner of Section 33, Township 1 South, Range 3 West; thence East to the Northwest corner of Section 6, Township 2 South, Range 2 West; thence South to the Southwest corner of Section 31, Township 3 South, Range 2 West; thence East to the Southeast corner of Section 36, Township 3 South, Range 1 West; thence North to the Northeast corner of Section 12, Township 1 South, Range 1 West; thence West to the Northwest corner of Section 9, Township 1 South, Range 1 West; thence North two miles to the NE corner Section 32, 1 N, 1W; thence West three miles to the SW corner Section 25; thence North 1 mile to the NE corner Section 26, Township 1 North, Range 2 West; thence West 1 mile to the SW corner Section 23; thence North four miles to the place of beginning.

PALO VERDE DISTRICT

Beginning at the North ¼ corner Section 2, T1S, R5W; thence South 1 mile to the South ¼ corner Section 2; thence East ½ mile to the SE corner Section 2, T1S, R5W; thence South 3/4 mile to the SW corner, NW¼, SW¼, Section 12, T1S, R4W; thence East ¼ mile to the SE corner, NW¼, SW¼ Section 12; thence South to the SW corner, SE¼, SW¼, Section 12; thence East to the Hassayampa River; thence Southeasterly along the Hassayampa River to the South Section line Section 13; thence East to the NE corner Section 24; thence South to the SE corner Section 24, T1S, R5W; thence East ½ mile to the S¼ corner Section 19, T1S, R4W; thence North to the center Section 19; thence East 3½ miles to the E¼ corner Section 22, T1S, R4W; thence North ½ mile to the NE corner Section 22; thence East ½ mile to the South ¼ corner Section 14, T1S, R4W; thence North 6 miles along the Median Line to the North ¼ corner Section 23, T1N, R4W; thence East ½ mile to the NE corner Section 23, T1N, R4W; thence North 3 miles to the NE corner Section 2, T1N, R4W; thence West 8 miles to the NE corner of Section 3, Township 1 North, Range 5 West; thence South 6 miles to the Southwest corner of Section 34, T1N, R5W; thence East to the place of beginning.

Environmental Factors

The future development and growth of Buckeye Union High School District will depend on a number of factors. Specifically some of these factors are:

1. The present and predicted growth of the State and Maricopa County.

2. The pending development of Interstate Route I - 10 and the proposed "Gila Cutoff".

3. The development of a labor force due to the termination of the Mexican National Program on December 31, 1964.

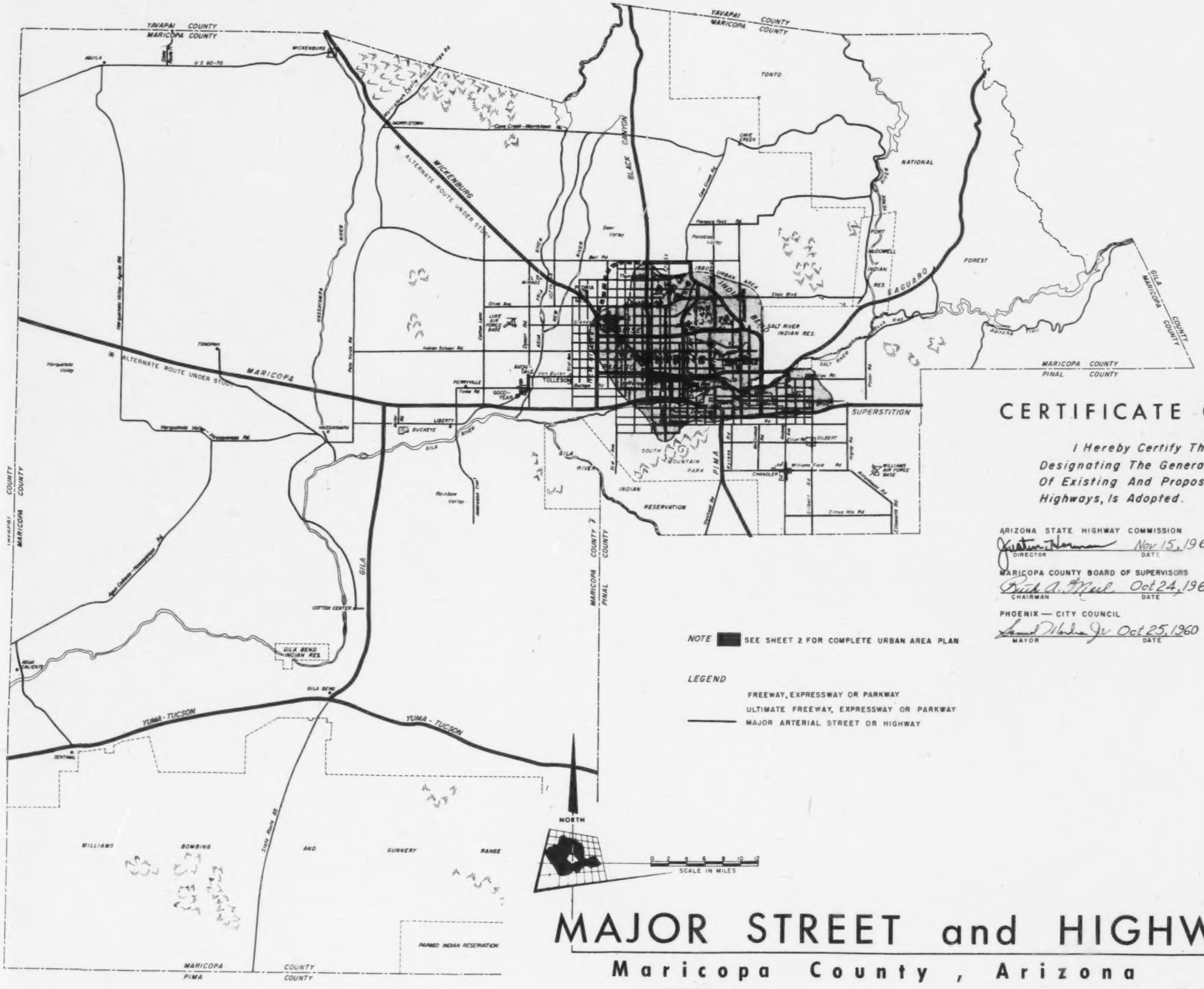
4. The current and future development of agriculture, business and industry.

5. Growth of the City of Buckeye.

Arizona and Maricopa County. Between 1900 and 1960 the population of Arizona increased at a more rapid rate than any other state. In 1960 the population of the State was 1,302,161 and was projected to be 2,200,000 by 1970 and three million plus by 1980. The population of Maricopa County was projected to be one million by 1970 and one and one-half million by 1975-80. The development of many industries and businesses west of Phoenix could effect the growth of housing in certain areas of the District.

Interstate Route I-10. Of concern to the Buckeye Union High School District will be the development of Interstate Route I-10 and the eventual development of the Gila cutoff. Figure 8 --- Major Street and Highway Plan, Maricopa County --- shows that Interstate Route I-10 (Maricopa on the County plan) would probably be located as an extension of Durango; however, the plans have not been finalized and an alternate route, an extension of the Papago Freeway along McDowell, is still under study. Once the freeway is parallel to the city of Buckeye, it will angle in a northwesterly direction. Plans must be finalized and construction started before 1970.

Some school districts in California have experienced tremendous growth


YAVAPAI COUNTY
MARICOPA COUNTY
AGUILA
WICKENBURG
U S 60-70
MORRISTOWN
Cave Creek-Morristown Rd
WICKENBURG
ALTERNATE ROUTE UNDER STUDY
BLACK CANYON
TONTO
NATIONAL
FOREST
CAVE CREEK
Paradise Valley
Deer Valley
1980 URBAN AREA
SALT RIVER INDIAN RES.
FORT McDOWELL INDIAN RES
SAGUARO
GILA COUNTY
MARICOPA COUNTY
MARICOPA COUNTY
PINAL COUNTY
SALT RIVER
SUPERSTITION
GILBERT
CHANDLER
WILLIAMS AIR FORCE BASE
PIMA
SOUTH MOUNTAIN PARK
GILA RIVER
INDIAN RESERVATION
PEORIA
LUKE AIR FORCE BASE
TOLLESON
GOODYEAR
PERRYVILLE
LIBERTY
BUCKEYE
HASSAYAMPA
HASSAYAMPA RIVER
TONOPAH
Harquahala Valley
MARICOPA
ALTERNATE ROUTE UNDER STUDY
Rainbow Valley
GILA
COTTON CENTER
GILA BEND INDIAN RES.
AGUA CALIENTE
GILA BEND
YUMA-TUCSON
YUMA-TUCSON
SENTINEL
State Route 85
MARICOPA COUNTY
PINAL COUNTY
YAVAPAI COUNTY
MARICOPA COUNTY
WILLIAMS BOMBING AND GUNNERY RANGE
PAPAGO INDIAN RESERVATION
MARICOPA COUNTY
PIMA COUNTY
NORTH
0 2 4 6 8 10 12
SCALE IN MILES
NOTE ▇ SEE SHEET 2 FOR COMPLETE URBAN AREA PLAN
LEGEND
FREEWAY, EXPRESSWAY OR PARKWAY
ULTIMATE FREEWAY, EXPRESSWAY OR PARKWAY
MAJOR ARTERIAL STREET OR HIGHWAY

CERTIFICATE OF ADOPTION

I Hereby Certify That This Master Plan, Designating The General Location And Extent Of Existing And Proposed Major Streets And Highways, Is Adopted.

ARIZONA STATE HIGHWAY COMMISSION
Justin Herman Nov 15, 1960
DIRECTOR DATE

MARICOPA COUNTY BOARD OF SUPERVISORS
Buck A. Neel Oct 24, 1960
CHAIRMAN DATE

PHOENIX — CITY COUNCIL
Samuel Mardian Jr Oct 25, 1960
MAYOR DATE

MAJOR STREET and HIGHWAY PLAN

Maricopa County, Arizona

SHEET 1 OF 2

PHOENIX — MARICOPA COUNTY TRAFFIC COORDINATING COMMITTEE after a freeway system was constructed across their district. With a freeway system it is possible for people to live 20-30 miles from their place of work and still get to work in a reasonable time. The development of the freeway system will have a profound effect on the growth and development of industry, housing and population.

Agricultural Labor Force. The termination of the bracero program on December 31, 1964 will have a very definite effect on the agricultural industry and population of the District. At the time of the writing of this report the Arizona Employment Service has not recommended to the U.S. Attorney General that it approves employer requests for foreign workers under a 1952 immigration law. Whether the labor force will continue to be adequate is problematical. At the present time single workers are being sent to fill the void left by the departed braceros. The eventual solution, coupled with mechanization, will probably be the family worker, but housing will have to be developed. The substitution of the family worker for the bracero could cause a tremendous increase in the pupil population in the Harquahala Valley because of the crops grown there.

Agriculture, Business and Industry. Primarily cotton and small grains are the major crops of this area. However, since 1958 commercial vegetables, fruits and rose plants have increased, especially in the Harquahala Valley. Mechanization and other physical changes such as water levels, Colorado River Project, etc., will continue to effect the pupil population of the District. An excellent example of mechanization is the use of machines to pick cotton. The Employment Security Commission of Arizona reported that during 1963, 2,563 machines were used to pick cotton accounting for 95 per cent of the crop. Compared to 2,155 machines used during 1962 accounting for 92 per cent of the crop.

City of Buckeye

The population of the City of Buckeye grew from 1,305 in 1950 to 2,286 in 1960, a 75 per cent increase. If the present rate of growth continues, Buckeye will probably double its 1960 population by 1975. A recent report[22] contains data on utility installations, postal receipts state excise taxes and building permits of the Buckeye community and agrees with the above projection excluding the advent of new industry which would no doubt cause much more rapid growth.

Recommendations and Conclusions

1. Each school district in the Buckeye Union High School District should maintain a data file on Maricopa County's prospects for numerical growth and physical change.

2. The plans and construction schedules of Interstate Route I-10 should be regularly studied by the Board and administration.

3. Since the agricultural labor force is so important to the development of the District a close working relationship with the large agricultural operations in the District and the Arizona Employment Service needs to be developed.

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[22] Merwin Deever and John Barnes, A Study of Buckeye Elementary District Number 33 Buildings and Site Utilization, Tempe, Arizona: Bureau of Educational Research and Services, Arizona State University, 1962, pp. 5-12.

4. The locations of new businesses and industry in the western fringe area of metropolitan Phoenix should be observed relative to future housing developments in the District.

5. The District should continue with its plans to develop a new high school plant in Harquahala Valley within the next ten years.

Pupil Population

The future pupil population of the districts involved in this survey could be projected by simply extending the trend line of total year-end membership in past years or the per cent of annual increment in total population. Graphs of the above projections will be presented and discussed by districts. However the above method does not reflect the results of many "hidden" factors, such as: the possibility of a larger or smaller enrollment moving upward into higher grades; policies of the school districts concerning promotions and nonpromotions; dropout and graduation factors; net in-out migration trends in the community. A survival or retention-ratio technique of statistical projection was used to take into account all of the above internal and external factors. The retention-ratio method is explained in the discussion of the Liberty School District pupil population projection.

Arlington District

Figure 9 indicates, based on an average increase of year-end memberships for the past three years of 17.9 per cent and peak membership over year-end membership for the past 10 years of 18 per cent, that the year-end membership of Arlington School District will be 844 with a peak membership of 996. The results of retention ratio method of projection appears in Table XIX. Year-end membership was projected as 743 and peak membership 877. The retention ratio method was considered the most reliable, however the solution of the agricultural labor force problems could have a tremendous effect on pupil population, especially in Harquahala Valley.

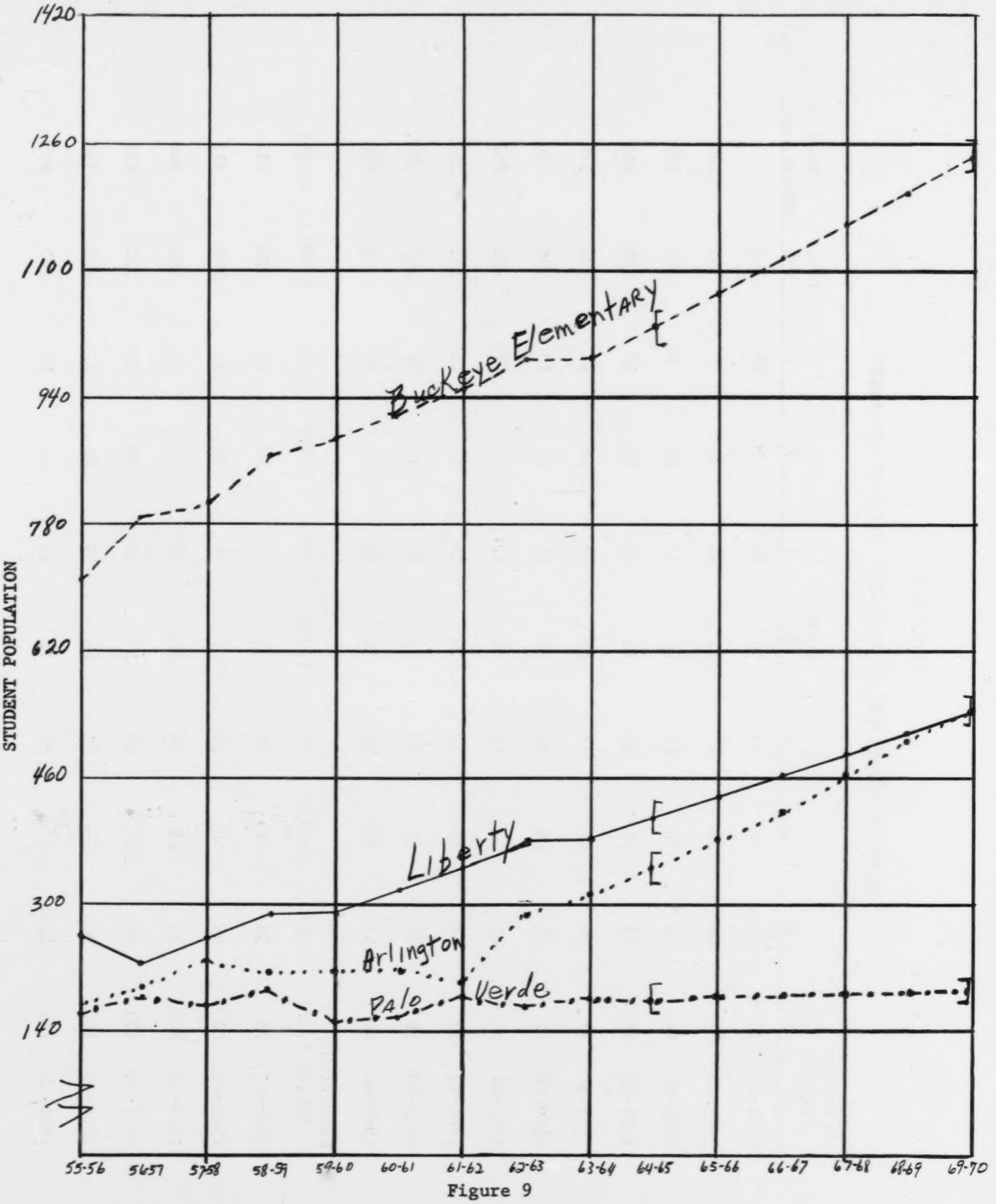

Figure 9

Average Increase of Year-End Memberships of the Four Elementary School Districts

TABLE XIX

PROJECTED MEMBERSHIP OF ARLINGTON DISTRICT BY GRADES

School Year	Grades 1	2	3	4	5	6	7	8	Total 1-8	Peak Membership
1954-55	38	26	16	19	12	12	7	15	145	
1955-56	33	38	27	17	21	14	12	7	169	220
1956-57	46	33	36	21	18	17	13	8	192	223
1957-58	29	32	40	28	18	24	18	19	208	252
1958-59	35	24	31	33	25	16	20	11	195	239
1959-60	27	39	24	30	25	21	17	15	198	199
1960-61	36	26	32	21	31	22	15	17	200	262
1961-62	37	18	24	25	19	24	24	13	182	231
1962-63	69	29	28	30	31	26	31	23	267	292
1963-64	64	55	30	34	36	33	31	32	315	328
Retention Ratios	1.174	.867	1.055	.941	1.018	1.014	1.019	.927	1.100	1.180
1964-65	75	55	58	28	35	37	34	28	350	413
1965-66	88	65	58	55	29	35	38	32	400	472
1966-67	103	76	68	55	56	29	36	35	458	540
1967-68	121	89	80	64	56	59	30	33	530	625
1968-69	142	205	94	75	65	57	58	27	623	735
1969-70	167	123	111	88	76	66	58	54	743	877

Buckeye Elementary District

The average annual increase of year-end membership for the Buckeye School District was three and nine-tenths per cent and the average increase of the peak membership to year-end membership was 12.2 per cent. Utilizing these percentages the year-end membership in 1969-70 was projected as 1250 and peak membership as 1402 (See figure 9).

The retention ratio method of projection for Buckeye Elementary Schools appears in Table XX. Year-end membership was projected as 1261 and peak membership 1415. The latter method was considered the most reliable.

Liberty School

Figure 9 shows the total year-end membership for the four elementary districts for the past ten years and a projected year-end membership until 1969-70. The Liberty School has had an average of 6.2 per cent increase over the last 10 years. Based on this percentage increase, the year-end membership in 1969-70 would be 558 pupils and the peak membership based on an average peak membership increment for the past 10 years of 1.23, would be 686.

The retention ratio method of projection for Liberty School District was applied to year-end membership by grades in Table XXI. The same method was used with the other school districts and the retention ratios were computed as follows:

By going down the first and second grade columns and dividing each year's grade two by the preceding year's grade one membership a series of retention ratios was obtained. The retention ratios thus computed were averaged, evaluated and in some cases adjusted by the survey staff. The retention ratio from grade 1 to 2 is shown as 100.7 per cent, grade 2 to 3 is 92.1 per cent, etc. In making a projection, retention ratios were assumed to extend down the column of data into future years. The internal and external factors listed above were assumed to follow the same pattern as preceding years. Many factors involved in past trends were integrated in this method of analysis in order to develop a more reliable projection. However, any change in any of the factors would cause a corresponding change in the projections.

The population for grade 1 was projected on the average increment for the past 10 years. An attempt was made to predict the population of grade 1 from the birth rate in Maricopa County but the reliability of the results was questioned and the decision was made to use the average increment.

The results of the retention ratio method are shown in Table XXI. Year-end membership of the Liberty School District in 1969-70 will approximate 520 and the peak membership, 640. Of the two projections the last was considered the most reliable since it was based on a mathematical analysis and evaluation of the year-end membership data.

TABLE XX

PROJECTED MEMBERSHIP OF BUCKEYE ELEMENTARY DISTRICT BY GRADES

School Year	Grades 1	2	3	4	5	6	7	8	Total 1-8	Peak Membership
1954-55	131	102	85	75	87	75	73	79	707	
1955-56	97	118	101	83	81	83	79	65	707	817
1956-57	122	99	126	102	89	87	89	77	791	950
1957-58	127	105	103	116	99	90	82	83	805	958
1958-59	135	115	113	118	118	102	83	82	866	982
1959-60	137	117	111	117	117	116	97	77	889	962
1960-61	145	117	133	110	106	113	107	89	920	1080
1961-62	141	136	116	125	116	98	114	108	954	1004
1962-63	141	134	128	131	120	107	112	110	992	1036
1963-64	158	127	117	118	140	114	110	101	994	1055
Retention Ratios	1.030	.911	1.009	1.008	1.013	.979	1.005	.946	1.039	1.122
1964-65	162	144	128	118	120	137	115	104	1028	1153
1965-66	167	148	145	129	120	117	138	109	1073	1204
1966-67	172	157	149	146	131	117	118	130	1120	1257
1967-68	177	161	158	150	148	128	118	112	1152	1293
1968-69	182	166	162	159	152	145	129	112	1209	1354
1969-70	187	166	167	163	161	149	146	122	1261	1415

TABLE XXI

PROJECTED MEMBERSHIP OF LIBERTY SCHOOL BY GRADES

School Year	Grades 1	2	3	4	5	6	7	8	Total 1-8	Peak Membership
1954-55	35	31	31	31	24	24	27	29	232	
1955-56	48	40	31	30	32	22	29	31	263	313
1956-57	38	36	36	25	28	26	18	26	233	304
1957-58	43	43	35	41	25	27	25	19	258	350
1958-59	50	42	37	40	37	28	33	23	290	338
1959-60	39	41	37	37	32	38	28	37	289	414
1960-61	54	39	34	40	36	36	46	32	317	398
1961-62	45	59	43	45	42	36	40	36	346	385
1962-63	64	48	49	44	54	45	42	39	385	444
1963-64	52	66	44	47	53	47	43	36	388	425
Retention Ratios	1.077	1.001	.921	1.047	1.010	.990	1.073	.989	1.062	1.230
1964-65	56	52	61	46	47	52	50	43	407	501
1965-66	60	56	48	64	46	46	56	49	425	523
1966-67	65	60	52	50	65	46	49	55	442	544
1967-68	70	65	55	55	50	64	49	48	456	561
1968-69	75	70	60	58	56	50	69	48	486	598
1969-70	81	75	65	63	59	55	54	68	520	640

Palo Verde School

Figure 9 also contains the graphic representation of the pupil population growth of the Palo Verde School and the projection of the District's growth based on an average increase of year-end membership for the past 10 years of one and four-tenths per cent increase per year. The pupil population in 1969-70 is projected as 197 pupils with a peak membership of 227 based on an average peak of 115.3 per cent of the year-end membership.

The retention ratio method resulted in a projected year-end enrollment of 216 with a peak membership of 249 in 1970-71. Results are listed in Table XXII.

Buckeye Union High School District

Figure 10 shows the total year-end membership, 1969-70 projected by simply extending the trend line for the past ten years as 799 students, an average increase of 6.4 per cent per year. The peak membership in 1969-70 was projected as 874 students, an average peak membership of 109.4 per cent of the year-end membership.

Two techniques were used in the retention ratio method of projection for Buckeye Union High School District. The first technique, the results of which are shown in Table XXIII, combined the year-end memberships of the four elementary districts and the high school district for the past 10 years; then retention ratios were developed upon the combined year-end membership and projected year-end membership for the next six years. Year-end membership in 1969-70 was projected as 587 and peak membership as 642. The second technique combined the projected year-end membership by grades of the four elementary districts, utilized the retention ratios developed in the first technique for grades 9 - 12 and projected the year-end membership by grades. This technique yielded a year-end membership of 601 in 1969-70. Projection membership data appears on Table XXIV. Actually the two techniques should produce identical results, but in averaging, evaluating and adjusting the retention ratios variance did occur. The results of the latter technique were considered the most reliable since they were based on an average of the mathematical analyses and evaluation of the available data on year-end memberships of each of the elementary districts. The Board of Education and administration of Buckeye Union High School District must be cognizant that growth may take place more rapidly than projected due to a change in any of the previously mentioned factors.

TABLE XXII

PROJECTED MEMBERSHIP OF PALO VERDE SCHOOL BY GRADES

School Year	Grades 1	2	3	4	5	6	7	8	Total 1-8	Peak Membership
1954-55	28	27	23	13	22	27	16	12	168	
1955-56	23	25	23	16	17	24	22	13	163	186
1956-57	32	28	22	25	13	16	22	23	181	202
1957-58	33	26	25	20	22	13	19	16	174	188
1958-59	35	24	27	28	19	23	19	17	192	200
1959-60	30	20	15	19	24	14	18	16	156	177
1960-61	25	20	22	15	19	27	15	17	160	260
1961-62	31	23	21	27	19	22	23	16	185	204
1962-63	32	25	21	15	26	17	21	22	179	204
1963-64	31	29	25	21	19	22	14	21	182	182
Retention Ratios	1.026	.836	.928	.940	1.034	.982	.985	.921	1.014	1.153
1964-65	32	26	27	24	22	19	22	13	185	213
1965-66	33	27	24	25	25	22	19	20	195	225
1966-67	34	28	25	23	26	24	22	18	200	231
1967-68	35	27	26	24	24	26	24	20	207	239
1968-69	36	29	26	24	25	24	26	23	212	244
1969-70	37	30	27	24	25	24	24	24	216	249

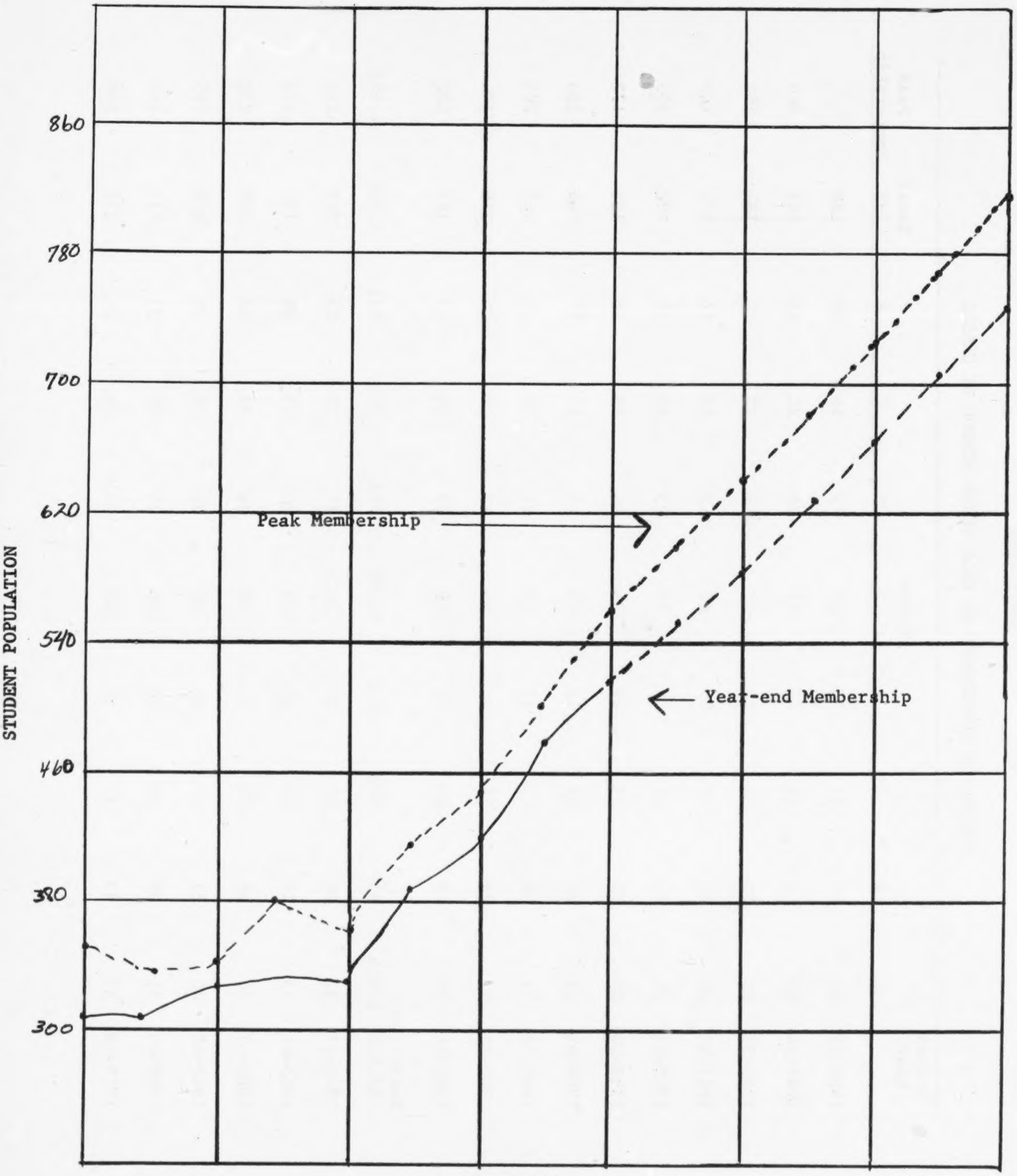

Figure 10

Projection of Year-End and Peak Membership, 1969-70 Based on Per Cent of Annual Increment in Total Year-End Membership

TABLE XXIII

PROJECTED MEMBERSHIP OF BUCKEYE UNION HIGH SCHOOL BY GRADES

School Year	Year End Membership by Grade Elementary Districts of Buckeye Union High S.D. 1	2	3	4	5	6	7	8	Buckeye Union High School 9	10	11	12	Grades 9-12 Total	Peak Membership Grades 9-12
1954-55	232	186	155	138	145	138	123	135	85	86	78	51	300	
1955-56	201	221	182	146	151	143	142	116	107	68	68	63	306	354
1956-57	238	196	220	173	148	146	142	134	91	94	62	61	308	339
1957-58	232	206	203	205	164	154	144	137	108	85	76	55	324	340
1958-59	255	205	208	219	199	169	155	133	97	104	69	63	333	382
1959-60	233	217	187	203	198	189	160	145	98	93	79	61	331	367
1960-61	260	202	221	186	192	198	183	155	141	91	86	69	387	415
1961-62	254	236	204	220	196	180	201	173	141	123	83	68	415	446
1962-63	306	236	226	220	231	195	206	194	150	127	121	80	478	503
1963-64	305	277	216	220	248	216	198	190	165	131	109	113	518	561
Retention Ratios		.904	.981	.991	1.012	.982	1.011	.946	.825	.901	.862	.874	1.064	1.094
1964-65		276	272	214	223	244	218	187	157	149	113	95	514	562
1965-66			271	270	216	219	247	206	154	141	128	99	522	571
1966-67				269	273	212	221	234	170	139	122	112	543	594
1967-68					272	268	214	209	193	153	120	107	573	627
1968-69						267	271	202	172	174	132	105	583	638
1969-70							270	256	167	155	150	115	587	642

TABLE XXIV

PROJECTED MEMBERSHIP OF BUCKEYE UNION HIGH SCHOOL BY GRADES BASED UPON PROJECTED YEAR END MEMBERSHIP OF EACH ELEMENTARY SCHOOL DISTRICT

School Year	Year End Membership by Grade Elementary Districts of Buckeye U. H. S. Dist. 1	2	3	4	5	6	7	8	Buckeye Union High School 9	10	11	12	Grades 1-8 Total	Grades 9-12 Total	Grades 1-12 Total
1963-64	305	277	216	220	248	216	198	190	165	131	109	113	1879	518	2397
Retention Ratios									.825	.901	.862	.874			
1964-65	325	277	274	216	224	245	221	188	157	149	113	95	1970	514	2484
1965-66	348	296	275	273	220	220	251	210	155	141	128	99	2093	523	2616
1966-67	374	321	294	274	278	216	225	238	173	140	122	112	2220	547	2769
1967-68	403	343	319	293	278	275	321	213	196	156	121	107	2345	580	2925
1968-69	435	370	342	316	298	276	283	209	176	177	134	106	2528	593	3121
1969-70	472	454	370	338	321	294	282	268	172	159	153	117	2740	601	3341

SPECIAL SERVICES

Introduction

A very simple and self-evident statement of purpose for the schools of our nation has been stated: to serve the boys and girls who attend school. The implimentation of this purpose is not nearly as evident nor as simple. Agreement exists that the service of pupils is broader than the primary task--that of providing activities of an academic nature. Activities such as food services, health services and transportation also provide for growth and development in social, emotional, mental and physical areas. These services have become more important in recent years and will be studied in this section of the survey of the Buckeye Union High School District.

FOOD SERVICES

Point of View

The modern school cafeteria represents a tremendous development from the old school lunch in pails and sacks which were eaten at a designated place on the school grounds on most days. Lunches were carried in the old lunch pail because it was too far to walk home for lunch. As schools were consolidated, the transportation problems involved in returning pupils home for lunch led to the establishment of the school lunch program. Other more recent developments have led to the establishment of a school lunch program for all pupils. Some of these developments are:

1. A concern for child development

2. A desire to assure at least one warm and nutritious meal per day

3. The more common incidence of both parents working so that no one is home at noon

4. Federal and state subsidization of the school lunch program

5. The distribution of surplus food commodities for use in school lunch programs[23]

The school lunch program provides many opportunities for enriching the educational program of boys and girls and may be a negative experience as well as a neutral or positive one. Good manners, poise, responsibility for order, social situations, history and origin of foods, nutrition, food services, and many other concepts may be learned. Good nutritious food, well prepared, and attractively served is an essential part of the school lunch program and the total program of the school.

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[23] Van Miller, The Public Administration of American School Systems, New York: The MacMillan Company, 1965, p. 370.

The key person in the school lunch program is the director or cafeteria manager. The following duties were delegated to this person:

1. Planning food service facilities, including areas and equipment

2. Selecting and training food service personnel

3. Planning and evaluating menus

4. Supervising the storage, preparation, and servicing of foods

5. Selecting foodstuffs, supplies, and equipment

6. Maintaining liaison with federal and state school lunch programs

7. Establishing and maintaining inventory procedures

8. Establishing and maintaining procedures for handling of receipts

9. Establishing sale prices for food items

10. Preparing cost and participation records on daily and cumulative bases

11. Broadening community understanding of the school lunch program

12. Supervising food preparation and service for extracurricular and outside organizations using school facilities[24]

Observations and Commendations

Arlington District

Seating facilities were provided for approximately the total school population at one time at the Harquahala Valley School. Approximately 94 per cent of the student body ate lunch at the school. Both the kitchen and dining area were adequate for the number of pupils served.

The district is to be commended on providing the excellent food service facilities at the Arlington School. Table XXV shows that 43,632 type A lunches were served to children during 1963-64 and of this number, 1,478 were free--approximately 3.4 per cent. Table XXVI indicates that 77 per cent of the pupils ate at school during 1963-64. The cafeterias were adequately staffed at each school.

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[24] Leo M. Casey, School Business Administration, New York: The Center for Applied Research in Education, Inc., 1964, pp. 103-104.

TABLE XXV

Type A Lunches to Pupils, Number and Percentage of Pupil Lunches Served Free, by the Elementary Districts, 1963-64

	No. Type A Lunches Served to Pupils	No. of Pupil Lunches Served Free	Percentage of Pupil Lunches Served Free
Liberty	39,649	1,333	3.4
Buckeye	101,663	3,565	3.5
Arlington	43,632	1,478	3.4
Palo Verde	24,368	7,564	31.0

Buckeye Elementary District

Three full-time, five part-time and 15 student workers made up the daily work force for the Buckeye Elementary School cafeteria. Approximately 320 pupils can be seated in the cafeteria. This is slightly less than one third of the pupil population. Primary students were allowed to go home for lunch if parents' permission was obtained. The cafeteria was also used as a community center for various activities. When kitchen facilities were needed a member of the cafeteria staff was present. A new storage room south of the cafeteria offered relief from overcrowding stores. Deliveries and garbage collection were easily made. The kitchen was well-planned, the equipment adequate and facilities well-maintained.

Liberty School

The staff of the Liberty School cafeteria consisted of three full-time persons and ten part-time girls--five girls working on each of the two serving shifts. Hand washing facilities appeared to be adequate. Storage and work areas were well arranged and under sanitary conditions. The district is commended on the appearance of the cafeteria. The lunch room has seating for 152 pupils which was over one-third of the average daily attendance of the school. Seating for one-third to one-half of the pupils is considered adequate.

During 1963-64, 39,649 lunches were served; of this number, 1,333 were free and 2,316 were served to adults. (See Table XXIV). Percentage of participation during each month of 1963-64 is presented in Table XXV. District funds, meal purchases by children and adults, and National School Lunch Act funds financed the lunch program with the assistance of the Farm Surplus Program.

Palo Verde School

Seating was provided for approximately 100 pupils which was more than adequate for the enrollment. Government surplus equipment has been secured for

TABLE XXVI

Average Number of Lunches and Percentage of Participation in the Elementary School Districts During Respective Months, 1963-64

Month	Liberty		Buckeye		Arlington		Palo Verde	
	Avg. No. Lunches per day	Per Cent of participation*	Avg. No. Lunches per day	Per Cent of participation*	Avg. No. Lunches per day	Per Cent of participation*	Avg. No. Lunches per day	Per Cent of participation*
September	243	64.1	650	66.7	218	64.5	135	84.9
October	230	59.7	643	65.4	247	73.1	139	87.4
November	241	63.6	644	66.4	264	78.1	137	86.2
December	237	63.2	648	66.8	248	73.3	139	87.4
January	250	68.1	617	64.8	262	77.5	140	88.0
February	241	65.7	611	62.5	261	77.2	147	92.4
March	231	64.5	571	59.7	282	83.4	147	92.4
April	236	66.1	549	58.5	254	75.1	154	96.8
May	170	48.1	560	59.0	248	73.4	148	93.1
Annual Average	231	62.6	609	63.2	261	77.2	148	93.1

*Computed on average daily attendance for the year equipping the kitchen. Table XXVI indicates the percentage of participation in the school lunch program was 93 percent for 1963-64. This percentage was the highest among the elementary schools in the Buckeye Union High School District. Table XXV helps to partially explain the high percentage of participation; note that 31 percent of the type A lunches served were free lunches. Student help was utilized in the kitchen and a large number worked for their lunches. Other factors, such as the isolation of the school, help to explain the high percentages in both cases. Both the board and administration are to be commended on a cafeteria program with this degree of participation.

The serving area did not have adequate steam tables or "sneeze bars."

Buckeye Union High School District

Seating facilities were provided for 168 students within the building and seats for an additional 100 outside. Two full-time workers were employed and were assisted by seven student workers. A variety of sandwiches, fish and chips, hamburgers, cheeseburgers, milk shakes, ice cream bars, chips, candy, cake, donuts, fruits were available, plates of Chile, spaghetti, or stew were served on certain days. Disposable plates, cups and eating utensils were used. Trash receptacles were very well placed. An estimated average of 275 to 280 students ate each day. The facilities were also available to students who brought sack lunches.

Conclusions and Recommendations

Arlington District

The pupil population has been steadily increasing during the last three years and cafeteria staff and facilities will need to increase also. Although the cafeteria at Harquahala School was adequate it appears that the district should expand these facilities first.

The school lunch period should be a learning activity and greater effort should be made to make it a profitable social experience. The atmosphere should help students to eat a more balanced meal and waste less food.

Buckeye Elementary District

Control of traffic in food preparation areas should be constantly sought. Food was adequately prepared and attractively served. Additional eating and/or expansion of the present cafeteria and dining area should be considered within the next three to five years due to the increase in enrollment. A primary cafeteria or dining area should be considered in the expansion of food services. However, if a new school is constructed on the north site this could reduce the crowded situation.

Liberty School

The cafeteria appeared to be functioning adequately at Liberty School. The facilities serve as an excellent example of care by faculty, staff and pupils.

Palo Verde School

Caution should be used in purchasing surplus equipment. Many times the maintenance of such equipment may prove very expensive. An adequate steam table and sneeze bar should be added to the serving line.

Buckeye Union High School District

The Buckeye Union High School District should plan to add a cafeteria to their food services program which would benefit the student body by providing the opportunity for well-balanced and nutritious meals. Many high schools in the valley had adopted a la carte meals very advantageously for their students.

HEALTH SERVICES

Point of View

School health services are provided for (1) checking on the health and physical condition of youngsters as a prerequisite to learning; (2) first aid and early attention in the case of accidents or illness at school; (3) prevention of communicable diseases; and (4) early identification and follow-up on medical, dental, and psychological services that pupils need. Doctors, dentists, public health officials and the home are also concerned with health of children and since most children are in school, the school has a unique position in both communication and action with respect to health.

Schools must improve health services and health instruction. Despite the present efforts of schools, the mental institutions are becoming more and more crowded and hospitals are overcrowded. Historically, health has always been one of the major educational objectives of the schools; yet the health programs of schools leave much to be desired. Many times programs exist but are not functional. A health program has to be of service to the pupil.

Observations and Commendations

Arlington District

The Arlington District was fortunate to have a full-time, well qualified nurse for a pupil population (average daily attendance, 1963-64) of 338. This district is to be commended for providing these services for youngsters. The nurse has adapted a health record and reporting and referral system for the health service needs of the Arlington School District. The nurse spent one day each week at the Harquahala Valley School. The services of the County Health Department were also effectively utilized. Height and weight measurements were taken for the children each year. Parent conferences and referral and follow-up of students were considered to be sources of problems. The nurse also handled truancy problems.

Buckeye Elementary District

The Buckeye Elementary District was fortunate in having the services of two full-time, well qualified nurses. Buckeye Elementary Schools pupil-nurse ratio was 500 to 1 and this is excellent. The district is commended for providing these services to pupils. Under the direction of the principal, each nurse conducts a program to safeguard the health and provide for the safety of the pupils and teachers. One nurse was responsible for the "lower" school and the head nurse for the "upper" school. A weekly report was submitted to the principal which served both as a very effective communication device and for immediate and future evaluation of the health services.

Height and weight measurements were recorded twice a year. Sight examinations and referrals, if needed, were made once a year. A local service club provided assistance to the needy in obtaining glasses. The district owned an audiometer and children were screened each year. A local dentist donated his time for dental examinations. Tuberculosis tests were made each year. The nurses worked with the County Health Department on immunizations for pupils.

The nurses worked closely with parents and teachers in the referral and follow-up of students. Assistance was also given to teachers in obtaining materials for the health program. An over-all health text book was used in the primary school.

Liberty School

Liberty School employed one person full-time to serve primarily as school nurse. Qualifications of this individual were quite adequate, and the district was fortunate to have the services of such an individual. Health records were up to date and well kept. Height, weight, and sight data were recorded each September, and pupils' height and weight measured at the end of each school year. The results of physical examinations such as sight, hearing, tuberculosis, and dental were reported to parents. Public health services and doctors and dentists from nearby cities were utilized to assist with additional examinations. Where inadequate finances existed in the homes, glasses were secured for children through local service clubs. The nurse was available for first aid in the case of accidents. Parents were notified in the case of accident or illness. Two beds were available for ill pupils in the nurse's office. After an absence students re-entered school through the nurse's office; thereby, all illnesses were checked by the nurse. A form was provided for teachers to refer a student to the nurse. However, the forms were useless if the teachers were unable to identify communicable diseases and other health problems. Information concerning immunizations was sent to each home and transportation assistance was provided to some children in order for them to obtain immunizations from the County Health Department.

Palo Verde School

Palo Verde School had a part-time nurse. Approximately one-fourth of this person's time was devoted to health service duties. However, she was available at any time in case of illness or accidents. Average daily attendance at Palo Verde for 1963-64 was 159 and the time devoted to health service duties was considered to be adequate. Services of the County Health Department were effectively utilized. Health records of pupils were not complete. The size of the staff and the fact that all live on the school grounds provides for a very open system of communication and a continuous day-by-day program of observation of children by teachers.

Buckeye Union High School District

The importance of the responsibility for health that is assumed when large numbers of youth are brought together into congested school living conditions cannot be overemphasized. Buckeye Union High School did not employ a nurse. Without the services of a school nurse, or anyone specifically responsible for a school health center, health services were fragmented. The most obvious type of health service--first aid--was administered by physical education and industrial arts teachers. An existence of coordinated health services to protect and promote the physical and mental health and safety of the high school students was not apparent to the survey team. The teaching of health habits, knowledge, appreciations and skills related to health was also not well coordinated.

Also needed were health services which would function effectively when pupils and staff were not feeling up to par. Such services would help to prevent the spread of contagious diseases and would help in identifying cronic illness and indications of mental health problems.

Conclusions and Recommendations

Arlington District

Efforts should be increased to provide more opportunities for activities which would improve communication between parents, teachers, pupils, administrators, and the nurse in regard to needs, responsibilities, and resources of the health services program. Teachers should utilize the services of the school nurse in the integration of health education into the total curriculum of the Arlington Schools. Facilities for health services should be included in the plans for the new school at Harquahala. As the pupil population increases at the Harquahala School the services of a nurse at the school should be expanded.

Buckeye Elementary District

The weekly reports should be combined at the end of the year and evaluated by comparing them with other school health programs and lists of criteria.[25] Teachers, parents, administrators and nurses should be constantly working for better communications. A variety of activities should be utilized to convey information and improve understandings and attitudes toward the need for good health services--and who should share responsibility for such services.

The school nurse and the health center should help students and staff members to develop the attitude that keeping and promoting good health must come before mastering academic content.

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[25] The following book contains many such lists: Deobold B. Van Dalen, Health and Safety Education, New York: The Center for Applied Research in Education, Inc., 1963.

Liberty School

Greater utilization should be made of the nurse's services in assisting classroom teachers in planning health instruction. She should be more than a consultant on first aid. Closer teacher-nurse co-operation, perhaps through a school committee on health education, should help the nurse in understanding the needs of teachers with respect to health; (and) teachers will thus learn to appreciate the services of the nurse in terms of resources and responsibilities. Emphasis should be placed on the integration of the health program into the total instructional program and not upon the nurse's health program.

Palo Verde School

Health records of Palo Verde School need to be evaluated and kept current. The administration should take steps to insure the continuance of open communication of teachers' observations of children that already exists. An informal in-service education program utilizing county medical and psychological authorities would be of great assistance to teachers in their efforts to wisely detect cases needing referral.

Buckeye Union High School District

The high school is large enough that the services of a part-time or, if possible, a full-time school nurse should be obtained. Normally the recommended pupil-nurse ratio for a high school is 1500 to 1, but due to the composition and environmental background of the student body, full-time services could well be justified.

TRANSPORTATION

Point of View

In the United States one-third of the pupil population, or approximately 12,000,000 youngsters, ride on 171,000 buses and travel 3,750,000 miles each day at a cost of approximately $35 per rider per year. Even with these numbers the school bus is the safest mode of transportation today.[26] This record is a tribute to the drivers, administrators and school boards who are responsible for pupil safety.

The daily ride is not an end within itself, but only a means by which to improve the educational program. Funds used for transportation are taken from the educational program; therefore, the transportation services should be as economical as possible, yet safe and convenient.

It is impossible to overemphasize the importance of safety in transportation services. State laws have established standards for school buses and their operation. Inspection of the buses is in the interest of the pupils, as is also the licensing and training of operators. But safety is not necessarily guaranteed by the above procedures; safety habits or precautions on the part of both pupils and the public are also necessary.

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[26] Paul Misner, Frederick Schneider, and Lowell Keith, Elementary School Administration. Columbus, Ohio: Charles E. Merrill Books, Inc., 1963, p. 298.

Boards of Education should provide certain rules and regulations to serve as guides to the superintendent or principal in planning the school bus routes. The following questions should be considered in establishing policy:

1. How far should children be required to walk?

2. What is the maximum time a child should be on the bus?

3. What should be the length of routes?

4. How many pupils should each bus carry?

5. Will the district own and operate its own buses or contract for transportation?

6. To what extent will auxiliary or feeder routes be used?

7. What will be the opening and closing hours of school?

8. Will a bus be required to make more than one trip?

9. Where will the bus be stored?[27]

If a school district operates efficient transportation services, it must carry the most pupils and cover the most miles per bus as possible. The driver and the bus represent the big costs in school transportation. However, there are factors which dictate the size of a bus, including the location and size of the pupil population in a district. The limitation on distances that a bus can travel is usually indicated in terms of time. No youngster should be requested to ride more than an hour on any trip. The use of smaller buses on feeder routes to bigger buses might prove more economical than bringing all buses to the school.

Many districts have developed maps showing the location of pupils, and have spent considerable time in determining the school bus routes. Many rather obvious principles should be utilized in developing economical and safe routes. Among these are: reduce as much as possible the distance that an empty bus travels; avoid having two buses cover the same section of a road; avoid spurs --backtracking is both time-consuming and dangerous in turning around. The most efficient routing is circular routing that starts and ends at the school. Pupils who get on first during the morning run should be the first home during the evening run if possible. Dual routing can improve the efficiency of transportation services by extending the time a bus and driver are in use. Dual routing calls for making approximately the same route twice before and twice after school. Elementary children are picked up on one trip and secondary school students during the other, with the school schedules syncronized with the bus schedules. True, daily mileage is doubled, but major transportation costs are not found in operational supplies and maintenance, but in buses and drivers. Transportation costs can frequently be reduced by dual routing.

Since one of the big costs is the salaries of bus drivers, the school must evaluate this cost carefully because bus driving is only a part-time job. Bus drivers, as custodians and maintenance personnel, present difficulties because much of their employed time occurs while the plant is in use.

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[27] Calvin Grieder, Truman Pierce, and William Rosenstengel, Public School Administration. New York: The Ronald Press Company, 1961, p. 293.

School bus maintenance can cause problems for small districts because equipment and mechanics are not available for repair work when needed. In larger districts, a school-owned and operated garage may be more economical and efficient.

The transportation services are also used for educational field trips for both pupils and teachers. Transportation services provide an opportunity for learning experiences in group responsibility for behavior, good safety habits, and other democratic group relationships.

Observations and Commendations

Arlington District

Of the four elementary districts the transportation problems were the most difficult in the Arlington District due to its size and shape, and the location of pupils of the district. Pupils were boarding buses at 6:45 a.m. and returning home, in some cases, at 5:15 p.m.

The superintendent planned the school bus routes. An excellent report of the bus routes was compiled by the superintendent and presented to the survey staff. Approximately 50 high school students were transported by the Arlington School District. Make and model of the buses are shown in Table XXVII.

Generally custodians were employed as bus drivers. Minor bus repairs were done by the district staff. Major maintenance was done in Buckeye and Phoenix depending upon the make and model of the bus. The service and facilities offered by an agency, plus the quality of the product, were the prime factors considered in the purchase of tires and other operational supplies.

Buckeye Elementary District

Buckeye Elementary School District owned seven buses. Six were 66 passenger using gasoline as fuel while one is a 1963 Crown, 92 passenger, bus using diesel fuel. Minor maintenance was handled by the head bus driver. Overhauls were made in Buckeye and Phoenix depending upon the make of the bus. The district hired one full-time person who was head bus driver and in charge of maintenance, two teachers and four custodians as bus drivers. Checks were made on number of pupils transported morning and night.

The first pupil was picked up at approximately 7:45 a.m. and delivered at 8:25. Approximately 20 high school students were transported by Buckeye Elementary School District.

Liberty School

The Liberty School owned eight buses, two 66 passenger and six 60 passenger capacity. Make and model of the buses are shown in Table XXVI. The oldest bus, Chevrolet 1953, was used on a stand-by basis only. Of the 431 pupils

TABLE XXVII

Make, Model and Size of School Buses of the Elementary and High School Districts of the Buckeye Union High School District, 1964-65

Liberty			Buckeye			Arlington			Palo Verde			BUHS District		
Make	Model	Size	Make	Model	Size	Make	Model	Size	Make	Model	Size	Make	Model	Size
Int	1963	66	Crown	1963	92	Ford	1964	66	GMC	1963	66	White	1956	66
Chev	1962	66	GMC	1959	66	Ford	1963	66	Int	1960	60	White	1950	48
Chev	1959	60	GMC	1958	66	Ford	1963	66	Int	1951	60	Int	1959	66
GMC	1958	60	GMC	1956	66	Int	1955	60	Int	1951	9	Int	1964	73
GMC	1956	60	GMC	1956	66	White	1956	60				GMC	1954	66
Chev	1955	60	Chev	1955	66	GMC	1957	60				Greyhound	1947	37
Chev	1954	60	Ford	1953	66	GMC	1951	35						
Chev	1953	60				Chev	1957	8						
						Chev	1956	8						

enrolled at the time of the survey only 15 were not transported. Buses travel over 300 miles per day and approximately 62,500 miles per year. Buses were overhauled each summer. Minor maintenance of buses was done by district personnel. At least 20 high school students were transported by the district. The increase of pupil population in Rainbow Valley was indicated as a problem area for continuing to transport high school students and elementary pupils on one bus.

Palo Verde School

The Palo Verde School transported approximately 51 high school students and over 90 per cent of the elementary pupils each day. The four buses owned by the district were driven by two custodians and two teachers. The buses were well maintained. Minor maintenance was done by the head custodian and bus driver. Drivers were responsible for the discipline on their bus and referred the "problem" cases to the superintendent. The superintendent and head bus driver compiled a complete map of the bus routes of the district.

Buckeye Union High School District

Buckeye Union High School District buses transported approximately nine, zero, 23, and 47 elementary school pupils on its four routes or a total of 79 elementary pupils transported on the cooperative arrangement with the elementary schools of the district. Drivers were employed also as maintenance personnel. Each driver cleaned his bus and inspected it after each run. A seating chart was maintained and daily reports have provisions for discipline remarks.

The bus driver on the Harquahala Valley run remained overnight four nights at the Mary E. Ranch. The round trip for this route is 103 miles with one hour and 50 minutes required for the trip. This route was referred to as the "express" schedule. The bus did not leave the highway to pick up students.

A G.M.C. 1954 bus was utilized as a spare bus. A Greyhound was the activity bus. The district planned to replace the White 1950 next year.

Recommendations and Conclusions

Arlington District

The following recommendations are presented:

1. The district should consider purchasing one or two new carriers within the next year. The construction of the new school at Harquahala and its effect on the transportation services of the district should be the major consideration in the above purchases. A ten year period is considered a normal period for depreciation. One older bus should be kept to be utilized as a reserve bus.

2. A comprehensive statement of transportation policy should be developed by the superintendent and submitted to the Board of Education for their consideration. After the policy has been approved it should be published for popular consumption.

3. Pupil carriage reports would be helpful in analyzing and evaluating the morning and afternoon routes.

Buckeye Elementary District

The following conclusions and recommendations are submitted to the Buckeye Elementary District:

1. A master up-to-date map should be maintained. Routes and pupil locations should be noted on the map. Maps should be large enough to provide space for necessary notations and to show all roads.[28]

2. Careful evaluation and comparison of the operational costs of the large (92 passenger) Crown bus should be made to govern future decisions regarding the purchase of new buses.

3. Regular pupil carriage reports would be helpful in evaluating morning and evening loads.

Liberty School

The following recommendations were viewed as important to the Liberty School District.

1. Continuous study should be made of the growth of pupil population in Rainbow Valley relative to transportation. Two bus runs will be necessary in the near future and routes should be worked cooperatively with Buckeye Union High School District.

2. Since 96.5 per cent of the pupil population were transported, a coordinated program concerned with safety and other pupil responsibilities while transported should be developed.

3. An up-to-date map of the attendance areas with location and number of pupils and approximate time schedules would provide anyone with immediate information of the transportation system and would aid in maintaining efficient service as the district grows.

Palo Verde School

1. The district should consider replacing the oldest bus within the next year.

2. A map of the bus routes and location of pupils, similar but larger than the one developed for the survey, should be kept up-to-date in the office.

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[28] Calvin Grieder, Truman Pierce, and William Rosenstengel. Public School Administration. New York: The Ronald Press Company, 1961, p. 294.

Buckeye Union High School District

The following recommendations are made for the Buckeye Union High School District:

1. A comprehensive transportation policy should be developed by the administration and submitted to the Board of Education for their consideration and approval.

2. Well defined practices should be the outgrowth of transportation policies. Both suggested practices and policies should be formally published by the district. Parents, student drivers, administrators, and teachers should clearly understand the rules of bus operation.

3. A transportation route map should be developed and kept current by the district. Location and number of students at each pick up point also should be noted.

4. Student carriage reports and maintenance check sheets would assist the district in maintaining and evaluating the safety, adequacy and economy of transportation services as the student population of the district continues to grow.

General Recommendations-For All Schools

The cooperation between the four elementary districts and the Buckeye Union High School District was exceptional and commendable regarding pupil transportation. However, the growth in pupil population in some areas of the district will be compounding certain problems and a more flexible system would be desirable. Many advantages could be claimed for one pupil transportation system serving combined districts' needs.

1. Maintenance costs would be lower. One authority stated:

> Maintenance costs per bus mile or per pupil for a unit which operates a large number of buses may be lower than one for a unit which operates fewer buses. A study in New York showed that 20 per cent of the transportation cost could be saved by administering this service through a large intermediate administrative unit. Studies of county units made in Alabama, West Virginia, and North Carolina show great savings in the large scale administration of the maintenance program.[29]

2. Administrative direction of the transportation system would be furnished by a director or supervisor of transportation and not by five administrators. This valuable and costly administrative time could be directed to instructional leadership and improvement of the curriculum.

3. Table XXVII indicates that 34 buses, including three carry-alls and an activity bus were maintained by all districts. By routing the entire district the number of buses could be reduced.

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[29] Calvin Grieder, Truman Pierce, and William Rosenstengel, Public School Administration, New York: The Ronald Press Company, 1961, p. 296.

SCHOOL PLANT FACILITIES

Point of View

School plant facilities include all the real and personal property that a school district owns and puts to educational use. They include school sites, buildings, transportation equipment, outdoor educational facilities, instructional equipment and furnishings. The first part of this chapter presents a point of view that includes a listing of the criteria by which facilities were evaluated. The second part was designed to give a brief history of the school plants and to point out the commendable facilities and practices related to the operation and maintenance. The third part presents recommendations for each of the four school districts.

Elementary school sites. Elementary school sites should be located in the most convenient place to serve the pupils. Sites should be in a residential area, preferably next to a city or county part. With this arrangement it is possible for both governmental units to make use of the other's facilities. Sites should not be in low lands that might be flooded, nor on the top of rocky hills that provide inadequate soil for plant growth. Sites should not be exposed to obnoxious odors, noise, or smoke. They should not be located on heavily traveled roads; a site near the center of a section is preferred to one on a busily traveled section road.

Elementary school sites for primary and intermediate grades should have at least five acres of land plus one acre for each 100 pupils. An elementary school with all eight grades should have 10 acres plus one acre for each 100 pupils. Junior high school sites should have 20 acres plus one acre for each 100 pupils.

High school sites. The same general characteristics needed for an elementary school site apply to a high school site. However, there are some differences. High school sites should be located close to a good road because many pupils drive cars to school each day. They must be larger than elementary school sites and should contain 30 acres of land plus an additional acre for each 100 students. High schools require about 50 per cent more building space per pupil than elementary schools and require about twice the outdoor educational facilities.

Elementary school buildings. Elementary school buildings should provide good learning facilities for pupils. The size of individual classrooms depends on the number of pupils to be served as well as the type of program offered. In general, the minimum recommended sizes for elementary school facilities are as follows:

Type of Room	Minimum Square Footage
Kindergarten	1200
Primary grades	1000
Intermediate & Upper grades	900
Shops	1500
Homemaking	1200
Library	1200

Each regular classroom should be equipped with darkening shades, a sink with running water and drain, chalkboards, book center, science center, clothing storage, pupil desks, work tables, teacher desk and chair, and supply cabinet or storage area. Each room should be properly ventilated, heated, and cooled. The school year is being lengthened and many rooms will be used during the summer months in the years ahead.

Special classrooms for instruction in art, music, and science are often provided for pupils in grades four through eight. In many schools the special teachers in these areas utilize the regular classrooms and do not have specialized facilities. Instrumental music programs require a special classroom. Elementary schools require special rooms for industrial arts and homemaking. All elementary schools should have a central library and each classroom should have a book center.

Elementary schools frequently provide a special teacher or teachers in physical education and have hour-long periods for game activities. For groups of pupils who participate in large muscle activities, facilities for dressing, showering are essential.

In addition to the instructional space there must be space for administrative activities. The superintendent and principal each must have a private office. Each should be located adjacent to office space for a secretary and clerical employees. A school health center for the nurse is a necessity. A conference room that can be used for parent interviews is also needed. A teacher's workroom is essential.

Regular building requirements include toilet rooms, janitorial supply storage, book storage, school supply storage, maintenance shop, heating rooms, and passageways.

Most elementary schools wish to provide a noon lunch program; facilities for food preparation, storage, serving, and dining are needed. Storage space for buses is essential. Such storage may be an enclosed area without a roof. However, shed-type storage is more satisfactory in this climate.

High school buildings. The high school's educational program is more specialized and requires more facilities than are required for elementary schools. The facilities are more specialized and more expensive. In addition, the equipment needed to provide a good high school program is much more elaborate and expensive than needed for an elementary school. The classrooms used for academic subjects require a minimum of 800 square feet of floor space and actually should have 1000 square feet for modern instructional programs. Shops will require from 60 to 120 square feet per pupil. Ordinarily shop classes are limited in number of pupils from 15 to 24. Homemaking programs can be taught in either the self-contained special classroom or in two specialized facilities designed primarily for foods and clothing laboratories. The self-contained classroom contains all the facilities for teaching homemaking, including one food unit for four girls, space for girls to work on clothing projects, space for child care activities, space for home nursing, and space for home furnishings.

High schools need large areas for outdoor educational programs, including space for physical education, athletics, art, biological study, and farming projects. Many high schools prefer to rent farming space away from the school.

High schools need space for organized guidance activities, including counselors' offices. A bookstore is also essential. High schools find a student center to be a fine space for teaching certain of the social graces and citizenship through student government.

Special classrooms in music and art are essential in a modern high school.

The survey team believes that a secondary school should not be allowed to grow in size greater than 1200 - 1500 pupils. A school with 700 students is adequate in size to offer well-rounded educational programs and will provide excellent opportunities for leadership development of students.

School equipment. All school equipment should be selected from the standpoint of educational use and safety. Equipment for administrative, maintenance, and operational purposes is selected with cost factors in mind but economy is not necessarily associated with low price. Specialized and automated equipment is making its way into the school's operation and availability and serviceability are associated with cost and need. Many school districts are too small to justify the expenditure for some types of equipment now available. Cooperative use of some of the equipment would benefit all districts and when appropriate such an arrangement should be established.

History and Commendations

Arlington District

The Arlington School consists of six school buildings and four cottages for teachers. In addition three trailer houses, occupied by teachers, have been moved onto the site. Wings I and II along with the gymnasium, were built in 1949. Wing III was constructed in 1953 and on the east side of the gym a covered area was walled-in for a homemaking classroom. In 1958 the fourth wing was constructed along with the cafeteria and additions of classrooms to Wings I and II. The woodshop is located in a metal building to the rear of the other buildings.

The school board is to be commended for the quality of the newer buildings. The buildings were adequately maintained and well equipped.

The Harquahala School is located on a 10 acre site and consists of two classroom buildings (each with two rooms), a cafeteria, two cottages, and a small maintenance and storage building. The classrooms are quite small, each having about 600 square feet of floor space. The buildings were old when they were moved to the site. They are of frame construction and cannot be made into good buildings without excessive expenditures. The cafeteria has been recently remodeled and the interior repainted. The school board is to be commended for securing an additional 20 acre school site, approximately 3/4 mile west of present site. The present buildings are to be abandoned upon completion of the new school by September, 1965.

Buckeye Elementary District

This school district had a building survey during the school year 1961-62. Many of the recommendations have been put into effect. The old U-shaped building, built in 1916 to serve as a combination high school and elementary school, is still in use. The maple flooring is still good and was well maintained. The classroom ceilings are quite high. The lighting was revised about 20 years ago but does not meet present day standards. Illumination engineers recommend from 50 to 80 foot-candles of light in a regular classroom. Rooms requiring close work by students should have as much as 120 foot-candles.

The administration-classroom building was constructed in 1938 at an original cost of $35,925.10. Evaporative coolers have been added and the heating system converted from steam to individually suspended gas-fired heaters. The school library is located in this building. The superintendent's office is also in this building.

Building # I was constructed in 1950 and Building # II in 1953. Both are adequate. The lighting in Building # II however, is far superior to that in Building # I.

Building # III was originally constructed in 1945 to serve as a school cafeteria. Upon completion of the new cafeteria in 1954, Building # III was remodeled into four classrooms. These classrooms do not have the most desirable shape. They are too long and too narrow. However, effective teaching can take place in them.

The shop building was a war surplus building and was purchased in 1948. Another building was added to it in 1955 and the two buildings became one L-shaped building. It was remodeled into a large shop. This is a fine instructional space. Another room, of concrete block, was added in 1963, and is used as a mechanical drawing room.

The health center contains the principal's office and guidance center. The building is of frame construction and is not very satisfactory and should be replaced.

The music building was purchased in 1959 for $50.00. It was used for music and drawing until 1963. The room is adequate for music. The room has been given a generous treatment of acousti-cekitex. The building contains a teacher's office as well as an instrument storage room.

The cafeteria was constructed in 1954 at a cost of $75,708. It will seat 360 pupils at fold-away table-benches. The kitchen, well equipped, is at one end and a stage at the other. The building is used for community affairs as well as school functions. Additional storage has been recently constructed.

The primary school, known as Unit II, was constructed in 1956 at a cost of $230,000. An additional classroom wing was constructed in 1960. The entire facility is cooled by refrigeration. This is an excellent school plant.

The Buckeye Elementary School is located on a plot of ground containing only six acres. The Unit II school is located on only three acres. The district owns a third site, on the north side of town, containing 17 acres. It is well located and is, in general, a good site.

The school board and administration are to be commended for making the best use of existing buildings. The district has invested heavily to make sub-standard buildings into adequate buildings. The school buildings were well maintained.

Liberty School

The school site consists of 10 acres of land. In addition the district has purchased about one-half acre of land across the road, west of the school, for auto and bus parking. The first building was built in 1910 at a cost of $4800. In 1926 four additional classrooms and an auditorium were added to the site. The next major construction took place in 1937-38 when, with the aid of the W.P.A. (or P.W.A.), a new classroom wing was added. Twenty years later the multi-purpose building was built at a cost of $160,000. This building provides a gymnasium-auditorium, cafeteria, nurse's office, and superintendent's office.

Two old buildings were moved onto the site from an old accommodation school site in unorganized territory that was annexed to the district in the late 1950's. These old Alzona Park Housing buildings provide storage, and a maintenance shop.

In 1961 the newest classroom building was constructed. It consists of eight classrooms and houses grades 1, 2 and 3. The cost of construction was $60,000. Each classroom has movable bookcases, an evaporative cooler and a suspended gas-fired heater. All of the buildings have been well maintained.

The school district has an opportunity to purchase an additional eight acres of land immediately to the north of the present school site. The plans are to use this land for a primary school at some future date.

Palo Verde School

The school site has seven and one-half acres of land. In addition to the school buildings there are eight dwelling units on the property. Three of these units are old trailer houses and onto each has been added a room. Single teachers live in these three units. The other dwellings are occupied by the principal and his family, two teachers and their families, and two custodians and their families.

The classroom building was built in 1928. The building is heated with butane gas heaters. The heaters were secured from war-surplus property. This building also contains an audio-visual room and book storage space.

The middle classroom building and the multi-purpose building were constructed in 1956. The classroom building contains three classrooms, a principal's office, and a nurse's office. The multi-purpose building houses an auditorium-cafeteria gymnasium. A stage is at one end of the large room and the kitchen at the other. On the south side of the building there are two dressing and shower rooms. Adjacent to these are the boys and girls restrooms.

The oldest building on campus is the original building constructed in 1920. The old building was constructed so that a movable partition between two classrooms made it possible to use both rooms as an auditorium. This served as the auditorium for the school community until 1956. At the present time one room is used for a first grade and the other for storage.

Another small frame building is used for a school library and sewing room for 4-H club girls.

The school plant is used extensively for county recreational activities. Lighted softball diamonds have heavy usage during the summer months. The gymnasium is used for county recreational activities during the winter months.

Buckeye Union High School District

The original high school plant was in the building now occupied by the Buckeye Elementary School. In 1929 the new Buckeye High School was constructed on the present site. The philosophy was to build classrooms so small that the administrators could not put more than 25 pupils in a room. Many of the small rooms now have 35 desks for pupils. Newer developments in instruction now take into account the necessity of having space for individual pupil work, small committee work, and large group instruction. With improved instructional programs, and the use of more instructional equipment, high schools now need rooms that are approximately twice the size of the rooms in the Main Building, now designated as Building "A".

The auditorium and classrooms numbered 5, 6 and 7, were added to the original building in 1930. The auditorium is adequate for the present student body. Buckeye Union High School is fortunate in having an auditorium which can easily accommodate the entire student population.

"B" Building was added in 1950. This building contains two classrooms used for English instruction, one classroom for general science, one classroom for biology and photography, and two homemaking classrooms. One homemaking room is a foods laboratory that can accommodate 24 girls. It is a good facility and was well equipped. The other rooms were used primarily for a clothing laboratory. The room is inadequate in size accommodating only 16-18 girls.

The gymnasium and the industrial arts building were built in 1956. The dressing room facilities in the gymnasium are adequate for only one class of boys and one of girls. In addition to the physical education dressing rooms there is one room that was used as a dressing room for the spring sports, track and tennis. Another room is a large room that was used for both vocal and instrumental music. This room is adequate at the present time but adequate practice rooms are lacking. The gymnasium is large enough to accommodate most of the people who wish to see high school basketball games. The roll-away bleachers make the space available for physical education activities during the school day.

The snack bar and bus garage were 1960 construction projects. The school does not have a cafeteria lunch program, other than snack bar service. The snack bar serves as a student center and is a very needed facility.

Building "C" houses the principal's office, guidance center, bookstore, business education classrooms and three regular classrooms, one of which is extra-large with a stage at one end. This is a very fine building. At the time this building was constructed, additions to the industrial arts building were also made. The auto mechanics shop and classroom were added. This now is an excellent facility.

Utilization of buildings. The utilization of room space and pupil stations were calculated for the high school plant. In determining per cent utilization of rooms it is necessary to determine the number of usable instructional spaces, including dressing rooms in the gymnasium and multiply this figure by the number of periods in the school day. This calculation was as follows: 28 x 6 = 168. Then the number of classrooms actually used for pupil instruction during the day is divided by this product. This calculation is: 146 divided by 168 = 87 percent. This is the percentage room utilization.

Pupil-station utilization is more difficult to determine. One must take into consideration the adequacy of space for pupils. The rooms in the old main building have as many as 35 chairs or desks, however the rooms are adequate for only maximum of 25. More than 25 pupils per room results in over-crowding. Therefore the number 25 is used as capacity for each small room. Seating space in the library or counseling offices is not used in caluclating utilization because regular instructional classes are not assigned to these spaces. The number of stations available in the buildings and outdoor facilities is multiplied by the number of periods in the school day. Then the number of actual pupils enrolled for each period is totaled. This is divided by the product of stations and periods. The calculations are as follows: 863 x 6 periods = 5178. Totals of period memberships 3425 divided by 5178 = 66 per cent. This percentage is the pupil-station utilization.

Both room utilization and pupil-station utilization are at acceptable levels. High schools the size of Buckeye Union High School can expect no more than 90 per cent utilization of rooms about 70 per cent utilization of pupil-stations. The only way to increase the capacity is to add buildings or periods. The latter presents many problems in the efficient operation of a high school. The school is growing at about the rate of two classrooms each year.

The high school board and the administration are to be commended for the far-sightedness in providing adequate buildings and other instructional space when needed. The procurement of a 60 acre school site in Harquahala Valley is another evidence of this foresight and good planning. It is entirely possible that a high school will be constructed on that site within the next 5 - 10 years. Approximately 1500 imported farm-laborers worked the fields in the newly developed agricultural area during recent years. In order to secure adequate farm help it will be necessary for housing to be constructed in the area to provide homes for people who will migrate to the valley to secure employment.

In districts where demands for additional facilities are such that bonds must be voted frequently it is recommended that a multi-phase bond program be submitted to the voters to cover building needs for a three - to - five - year period. Such a multi-phase bond program when approved by the voters will authorize the board to issue bonds as needed and as permitted within the legal limitations. This is more economical because the expense of several elections is saved and bonds can be sold when the market is the most favorable. It has the further advantage of proper timing for providing facilities when needed.

Debt Service Programs. Bond Issues. All of the school districts surveyed in this report have been using long-term bonding programs to finance school house construction programs. The following table presents the various bond issues, average interest rates for each, maturity dates, amount paid, and unpaid balances.

TABLE XXVIII

SCHOOL BOND ISSUES IN BUCKEYE AREA

School District	Date of Issue	Amount of Issue	Average Interest Rate(%)	Date of Maturity	Amount Paid	Outstanding Balance
Arlington	7-1-49	$ 120,000	2.6250	7-1-51/70	$ 78,000	$ 42,000
	2-1-58	174,000	3.2247	6-1-60/74	54,000	120,000
	1-1-65	210,000	3.2500	1-1-66/80	0	210,000
Buckeye Elementary	1-1-48	100,000	3.000	1-1-49/68	80,000	20,000
	1-1-54	90,000	2.8511	7-1-55/74	35,000	55,000
	4-1-56	180,000	3.1136	7-1-57/77	50,000	130,000
	3-1-60	122,000	4.2490	12-1-62/77	10,000	112,000
Liberty	7-1-56	150,000	3.2885	7-1-58/76	30,000	120,000
	5-1-60	60,000	4.2837	1-1-61/72	20,000	40,000
Palo Verde	5-1-56	105,000	3.4576	7-1-57/76	45,000	60,000
Buckeye Union High	1-1-56	325,000	3.1628	7-1-57/75	100,000	325,000
	1-1-62	200,000	3.1943	7-1-63/70	25,000	175,000

Debt Payment Schedules. The debt service program may seem sizable if only the above table is studied. The exact amounts to be paid toward the retirement of the debt and also for interest are included in the following table.

TABLE XXIX

SCHEDULE OF BOND INTEREST AND REDEMPTION PAYMENTS
PUBLIC SCHOOL DISTRICTS IN BUCKEYE AREA

Tax Year	Item	Arlington	Buckeye Elem.	Liberty	Palo Verde	Buckeye U.H.S.
1964	Principal	$ 16,000	$ 24,000	$ 10,000	$ 5,000	$ 45,000
	Interest	4,782	10,161	5,287	2,100	5,597
1965	Principal	16,000	24,000	15,000	5,000	45,000
	Interest	16,012	9,749	4,937	1,913	4,906
1966	Principal	31,000	24,000	15,000	5,000	45,000
	Interest	11,852	8,725	4,437	1,744	4,216
1967	Principal	31,000	24,000	15,000	5,000	45,000
	Interest	10,672	7,790	3,937	1,575	3,524
1968	Principal	31,000	22,000	15,000	5,000	45,000
	Interest	8,752	7,290	3,400	1,400	3,525
1969	Principal	31,000	25,000	15,000	5,000	45,000
	Interest	7,832	6,492	2,862	1,225	2,819
1970	Principal	30,000	25,000	15,000	5,000	45,000
	Interest	6,900	5,623	2,325	1,050	2,112
1971	Principal	30,000	25,000	15,000	5,000	20,000
	Interest	5,962	4,755	1,787	875	1,381
1972	Principal	30,000	25,000	15,000	5,000	20,000
	Interest	4,825	3,886	1,350	700	1,056
1973	Principal	30,000	25,000	10,000	5,000	20,000
	Interest	3,850	3,017	1,012	525	731
1974	Principal	15,000	20,000	10,000	5,000	20,000
	Interest	2,875	2,149	675	350	406
1975	Principal	15,000	20,000	10,000	5,000	5,000
	Interest	2,380	1,424	337	175	81
1976	Principal	15,000	12,000			
	Interest	2,040	693			
1977	Principal	15,000	7,000			
	Interest	1,530	147			
1978	Principal	15,000				
	Interest	1,020				
1979	Principal	15,000				
	Interest	510				

Conclusions and Recommendations

General and specific recommendations for each of the districts will be given separate treatment. During the progress of the survey some verbal recommendations were made regarding minor matters. These will not be restated. From the criteria established earlier in this report certain recommendations can be developed. If buildings and facilities do not meet the criteria an implied recommendation is inherent.

The history of the Buckeye area is one of steady growth, but it is not spectacular. The high school population is growing about eight per cent each year. As holding power increases more and more elementary school pupils will continue their education in high school. It appears to the survey team that the most rapid growth in pupil population may likely take place in the Harquahala Valley. The Arlington School District and the Buckeye Union High School District will be affected by this growth. Both districts have already laid plans to meet the needs.

Arlington District

The bond issue dated January 1, 1965 was to serve a two-fold purpose. It was to provide funds to construct an elementary school in Harquahala Valley and to provide a library and shop building for the Arlington School. Because of the rapid growth in pupil population in Harquahala Valley, and also due to the long distances that pupils must be transported to the Arlington School, the survey team recommends that as much money as possible from the bond issue be spent to build classrooms at the new Harquahala site. As many pupils in that area as the new facilities will accommodate should be educated at the site in order to reduce transportation costs and to reduce the time spent on buses by children in the lower grades particularly. It is clearly evident that the number of pupils in that area now exceed the number in the Arlington area. Within two or three years they might well greatly outnumber the pupils in the Arlington area. It is recommended that long-range plans be made to provide a complete elementary school on the site, grades 1-8.

With the growth being primarily in the Harquahala Valley it is proper that some consideration be given to completing needed facilities on the Arlington site. There is no question about the need for an adequate shop. Plans should go ahead on this. Rather than build a library building it is suggested that homemaking facilities are more urgent. With the loss of pupils to the Harquahala School it will be possible to remove the partition between two classrooms and provide for a very adequate library in this way. The existing homemaking classrooms are very inadequate. One room, carefully designed, with about 1200 square feet of floor space can provide a multi-purpose classroom for homemaking. Not all pupils need to be working on a foods project at the same time.

The student populations in the Arlington District were distributed as follows as of December, 1964:

	Arlington School		Harquahala
Grade	from Arlington	from Harquahala	School
1	28	0	47
2	22	0	38
3	25	34	0
4	17	14	0
5	14	18	0
6	17	22	0
7	10	21	0
8	14	16	0
	97	125	85

A total of 210 pupils lived in the Harquahala Valley as compared with 97 who lived in the Arlington area. Continued rapid growth will undoubtedly be in the Harquahala area within the next few years. Jobs are available and workers will be attracted to the area.

The school board has wisely decided to abandon the frame buildings at the Harquahala site, however, the site should be kept for future use as it likely will be needed. The Harquahala site has an advantage over the Arlington site in that natural gas is available for heating the building.

Buckeye Elementary District

A detailed survey of buildings was made a few years ago. The report was examined and it was found that many recommendations of the previous survey had been executed. The board and superintendent are to be commended for the improvements that have been made. There was a clear indication that the board wants the pupils to have good facilities. The old building in which the nurse, principal and guidance clinic are located is sub-standard and is too close to other buildings. It is recommended that it be removed in the not too distant future.

At a future date the district will want to consider the desirability of constructing an education center that will serve the two existing schools and the school that will be constructed on the north side of town. This center could be on the north site but should be apart from the school. Such a center should contain offices for the superintendent and his staff, an instructional materials center, business offices. Bus storage and repair shops could also be provided here.

The lighting in some of the classrooms was sub-standard. Survey team members were told that buildings would have to be re-wired before additional lights could be added. This is true of many older school buildings in America. Some have been re-wired two and three times in order to accommodate the improved lighting and the never-ending addition of electrical equipment. There is no great urgency for this improvement but it is one that should be planned.

Liberty School

The custodial and maintenance services were of outstanding quality. The cafeteria personnel are also to be congratulated for the superior appearance and cleanliness of facilities under their jurisdiction. The newest building on the campus is a very economical building but also a fine building. The school has grown slowly during the past but the growth has been steady and will continue.

The board is considering the purchase of eight acres of land immediately to the north of the existing site. The survey team endorses this purchase. One purpose mentioned for this site was to construct a primary school on the site. This would keep the older children, who use both the cafeteria and gymnasium, close to the facilities while the primary children would only need to walk a short distance for lunch in the cafeteria. A long-range program should be developed for future site use. If the primary school is to be on the land to the north then plans for construction of adequate shop and homemaking facilities should be included in the planning for the present site. The old bus garage that was converted to a shop is not adequate, either in quality or size. The two old Alzona Housing buildings should be discarded. When the shop building is constructed, an adequate maintenance shop should also be provided.

Palo Verde School

The Board of Trustees is to be commended for making school facilities available to community groups. The county recreation program makes extensive use of the gymnasium and the grounds. There are lighted softball diamonds on the campus. The school has grown irregularly, and there apparently has been no long-range plan for buildings and use of the site. Some of the older classrooms are sub-standard. Considerable money will be needed to improve the lighting, heating, and cooling systems. The room now used for a library is about 18 ft. by 32 ft. in size. It is not a good room. The room now used for storage of costumes, etc., is much more adequate for a library but it will probably be needed as a regular classroom in another year. The pupil population has fluctuated in years past but there is little reason to think that there will be substantial growth in the immediate years ahead. The audio-visual room could be converted to a small classroom, if needed, and each individual classroom could be equipped with darkening shades to permit use of AV equipment.

Long-range planning for site development is important in the district. The eight dwellings on the campus are not of quality construction. The three that were old trailer houses were not inspected on the interior but the outside appearance leads the survey team to recommend a close evaluation of this type of dwelling. These accommodations are totally inadequate. The survey team thinks that the existing site, consisting of seven and one-half acres, is too small for the school, much less provide space for housing. If the Palo Verde school is to develop as it should, additional land should be secured both for playgrounds and housing. The district can rent such dwellings to teachers for enough to retire the principal and pay the interest on bonds. Besides, the teachers that might be attracted, because of the many other favorable things about the school, would be much greater.

Buckeye Union High School District

Many improvements have been made within recent years to the buildings on the Buckeye High School campus. The custodial and maintenance services are good. The Board of Education and the superintendent are to be commended for securing a second high school site in Harquahala Valley. It is quite possible that a high school will be needed there within the next 5-10 years. Sites should be secured as much as ten years in advance. The timing for securing the second site was good; it was not secured too soon.

As Buckeye High School continues to grow at a rate of about eight per cent yearly it will be necessary to consider additions and alterations. One music room now serves the entire school. Additional facilities are needed for fine arts including another music room. The library is adequate for the present student body but an enlargement or a new library will be needed in less than five years. A cafeteria and woodworking facilities are needed additions. The dressing room facilities are now adequate for the school, but these will need to be doubled in size for the physical education classes in the not too distant future.

The science facilities will need to be expanded within the next few years. The enlargement of the chemistry room has been a great improvement. The next building to be constructed on the campus could well be a science building. The newer science courses require more and varied equipment for proper instruction.

The lockers in the boys' dressing rooms are placed on the floor. They are of the type that can be placed on a pedestal. The pedestal could be of concrete and could also have seating space along the front of the lockers. The dressing room ceiling is low and the moisture content in the room is frequently high. Boys are issued towels about twice each week. The damp towels are kept in the lockers along with the physical education suits and shoes. A real improvement would be to provide ducts and a blower to force air through the dressing room and lockers throughout the day and night. Another, and perhaps better improvement, would be to issue towels daily and not permit students to put damp towels in lockers. The showers are excellent. There is no drying space. Towel hooks should be placed close to the shower entrance so that students will dry off before walking across the dressing room floor.

The Buckeye Union High School District needs to continue improvement of the facilities on the present site; some classrooms are not adequate for the present program and with continued growth in student population and future program needs additional stress will be placed on the present facilities. Excellent additions have been provided in recent years. A long-range building program should be developed to provide for systematic up-grading of the school plant.

FINANCE AND BUSINESS MANAGEMENT

Purpose

The development and maintenance of a sound educational program rests on solid financial and business management procedures. It also rests on the ability and willingness of a state to assist local school districts in this important endeavor. Financial abilities and business management procedures of each school district were examined and are reported in this chapter.

Ability to Finance Education

The ability of a school district to provide adequate financial aid to support quality educational programs rests on the state's definition of a basic cost program, the assessed valuation behind each child in the district, the adequacy of the size of the district, and the willingness of the people to tax themselves to support such a program. The Arizona basic costs are established by law at $275 per pupil for each elementary school child and $425 for each high school student. The average cost of education per child in Arizona was $441.83 for elementary school pupils and $624.11 for high school pupils for the school year 1963-64. The basic assumption made by the state in setting up the finance program is that the obligation of the state and the county is only for the operational program (current expenses) and not for the capital outlay or building programs. Because of remoteness some school districts find it impossible to compete with larger population centers when trying to employ teachers. They find it necessary to offer additional financial incentives to attract personnel, thus raising the cost of education per pupil.

Assessed Valuations

The best single indicator of a school district's ability to finance education is the amount of taxable wealth back of each pupil enrolled. This is obtained by dividing the assessed valuation by the number of pupils for which financial aid is provided - the average daily attendance. The following table gives important information relative to the ability of each district to finance educational costs.

TABLE XXX

TOTAL AND PER CAPITA ASSESSED VALUATIONS

School District	1963 Assessed Valuation	1964 Assessed Valuation	A.D.A.	1964 Per Capita Assessed Valuation
Arlington	$ 8,980,402	$ 9,304,100	287	$ 32,185
Buckeye Elem.	4,951,470	5,215,406	963	5,416
Liberty	3,486,313	3,738,159	369	10,131
Palo Verde	1,461,629	1,475,446	159	9,280
Buckeye U.H.S.	18,879,814	19,733,111	507	38,921

Data from ANNUAL REPORT of the Superintendent of Public Instruction, 1962-63 and 1963-64.

Tax Rates

The tax rate that the property taxpayers must pay in a school district is closely related to the cost of the local schools. The total tax rate is a composite of several tax rates - state, county, city, school. The tax rates for the elementary school district taxpayers for the four elementary school districts in the Buckeye Union High School District are found in Table XXXI.

TABLE XXXI

1964 SCHOOL DISTRICT TAX RATES

Purpose of Levy	Arlington	Buckeye Elem.	Liberty	Palo Verde
School:				
Maintenance	1.4674	$ 4.6972	$ 2.6375	$ 3.1987
Ten Cent Levy	.1000	0	0	0
Bond Interest	.0506	.1918	.1425	.1424
Bond Redemption	.1720	.4610	.2600	.3389
Sub-Total	1.79	5.35	3.04	3.68
Buckeye U.H.S.D.	1.65	1.65	1.65	1.65
Junior College	.26	.26	.26	.26
State	1.35	1.35	1.35	1.35
County	1.59	1.59	1.59	1.59
TOTAL - - - - - -	$ 6.64	$ 10.20	$ 7.89	$ 8.53

A comparison of the school tax rates by districts for the past seven years is found in Table XXXII.

TABLE XXXII

SCHOOL DISTRICT TAX RATES, 1958-1964

Year	Arlington	Buckeye Elem.	Liberty	Palo Verde	Buckeye U.H.S.
1958	$ 1.46	$ 4.67	$ 2.99	$ 4.57	$ 1.23
1959	1.42	4.14	2.86	4.34	1.16
1960	1.01	4.98	2.61	3.38	1.04
1961	1.40	5.55	2.98	4.51	1.18
1962	1.42	5.51	3.02	3.76	1.52
1963	1.59	4.96	2.85	3.24	1.59
1964	1.79	5.35	3.04	3.68	1.65

Quality Cost Factors

The quality of an educational program depends on several factors. It depends on having adequate funds to employ qualified personnel, build adequate plant facilities, and procure quality instructional materials. Quality also depends on the utility to which materials and services are put. In small school districts it is difficult to offer well-rounded educational experiences because the smallness of the district makes it very expensive if not impossible to secure the services of a variety of special instructional and other professional personnel. Quality education programs are related to size of district to a considerable extent. This has resulted in recommendations, well known in many states, to the effect that a school district should serve an entire community, should provide educational services from kindergarten through high school, and should have at least 10,000 pupils. Such a district can afford to employ specialized personnel, such as a psychologist, reading specialist, speech therapist, guidance counselor, psychiatrist, and psychometrist. Small districts that cooperate can secure some special personnel on a sharing basis, each receiving professional services part-time.

Budget Considerations

The current budgets of each school district were examined. They all appeared to reflect a genuine concern for the local taxpayer and the pupil. Receipts and expenditures were compared.

Receipts and Revenues. The receipts for maintenance and operation for the school year 1964-65 are indicated in the following table.

TABLE XXXIII

SCHOOL DISTRICT RECEIPTS, 1964-65

Source	Arlington	Buckeye Elem.	Liberty	Palo Verde	Buckeye U.H.S.
Cash Balance	$	13,096.09	10,731.49	10,439.13	$ 5,000.00
State & County	66,609.25	197,643.21	76,187.58	32,488.40	110,072.37
Auto Lieu Tax					5,000.00
Vocational Ed.					4,000.00
Other Federal					6,000.00
Homebound					
Special Educ.		1,707.58			
Tuition					9,000.00
Fees, Rentals, etc.	500.00	100.00	700.00		400.00
Equalization	0	17,804.54			0
District Levy	136,484.94	245,173.35	98,369.77	47,213.47	250,778.42

Only one district, Buckeye Elementary, receives equalization aid. All receive auto lieu tax money but some included the amount in with other state and county aid. No district received money for educating homebound pupils and only one received money for educating mentally retarded children. None of the districts had a large cash balance from the previous year's operation. This is commendable inasmuch as it reflects sound budget practice.

Expenditures. The budgeted expenditures for each district are shown in Table XXXIV. The percentage distribution of the operating budget, exclusive of capital outlay and debt service, is shown in Table XXXV. The per capita expenditures are indicated in Table XXXVI.

An examination of Tables XXXIV, XXXV, and XXXVI lead the survey team to make the following recommendations relating to budgeted items. It appears that both Arlington and Palo Verde districts should budget about 50% of the principal's salary under Category I, code 10200, salary for superintendent. In the Liberty School District one of the full-time teachers is also designated as principal. Only that portion of his salary that is due to extra work weeks or responsibility should be charged to the principal's code; the remainder of his salary should be charged to teaching. The superintendent's salary could perhaps be more properly charged one-half to superintendent and one-half to principal.

In the Buckeye Elementary School District it appears that two clerical salaries are charged in Category I. An examination of duties lead the survey team to the conclusion that one of these salaries should be coded 20900 because the duties more nearly relate to the work of principal's secretary.

The per capita budgeted expenditures are a little higher than the average for the State of Arizona. However, in view of the large transportation system needed it is surprising that they are not higher.

At the time of the survey the Arlington School District was the wealthiest of the elementary districts in the Buckeye area. However, the survey team has reasons to believe that enrollment growth in the Harquahala area could be quite rapid in the immediate years ahead and the current favorable ratio of assessed evaluation per pupil may well diminish. This district will probably find it difficult to provide housing and transportation for the increasing numbers of pupils it must serve.

Cost analysis. It is wise for a district to make a cost analysis of some of the operational costs. For example: How much does it cost to transport pupils from the Harquahala area to Arlington School as compared to the cost that Arlington District would experience if an enlarged school were built at Harquahala? This should not be the only criterion on which the solution rests. What are the educational implications? What is best for the child's welfare? A cost analysis of many operational procedures helps the administrator to make sound decisions and recommendations. (See School Plant Facilities section "Conclusions and Recommendations-Arlington School District.")

TABLE XXXIV

BUDGETED EXPENDITURES FOR SCHOOL DISTRICTS, 1964-65

Category	Arlington	Buckeye Elem.	Liberty	Palo Verde	Buckeye U.H.S.
Administration	$ 4,450	26,465	19,000	300	27,172
Instruction	119,500	331,103	103,525	53,408	239,199
Operation	20,250	47,834	14,300	9,700	24,830
Maintenance	8,700	13,640	8,150	3,500	25,971
Auxiliary Agencies	16,000	15,300	20,900	11,100	26,120
Fixed Charges	5,950	19,573	7,450	1,850	10,279
Contingencies	4,000	4,000	3,000	783	3,000
Capital Outlay	22,000	17,600	10,000	9,500	30,990
Total	200,850	475,515	186,325	90,141	387,561
Bldg. Fund (10¢)	9,304	,0			19,733
Bond Interest	4,700	10,000	5,300	2,100	10,600
Bond Redemption	16,000	24,000	9,700	5,000	45,000
GRAND TOTAL	230,854	509,515	201,325	97,241	462,894

TABLE XXXV

PERCENTAGE DISTRIBUTION OF OPERATING BUDGETS, 1964-65

Category	Arlington	Buckeye Elem.	Liberty	Palo Verde	Buckeye U.H.S.
Administration	2.5	5.8	10.8	.4	7.6
Instruction	66.8	72.3	58.7	66.2	67.1
Operation	11.3	10.4	8.1	12.0	7.0
Maintenance	4.9	3.0	4.6	4.3	7.3
Auxiliary Agencies	8.9	3.3	11.9	13.8	7.3
Fixed Charges	3.3	4.3	4.2	2.3	2.9
Contingencies	2.3	.9	1.7	1.0	.8
TOTAL	100.0	100.0	100.0	100.0	100.0

TABLE XXXVI

PER PUPIL EXPENDITURES BY DISTRICTS AND CATEGORIES, 1964-65

Category	Arlington	Buckeye Elem.	Liberty	Palo Verde	Buckeye U.H.S.
Administration	$ 13.16	$ 26.79	$ 51.21	$ 1.88	$ 47.58
Instruction	353.55	335.12	279.04	335.89	418.91
Operation	59.91	48.41	38.54	61.00	43.48
Maintenance	25.73	13.81	21.96	22.01	45.48
Auxiliary Agencies	47.33	15.49	56.33	69.81	45.74
Fixed Charges	17.60	19.82	20.08	11.63	18.00
Capital Outlay	65.08	17.81	26.95	59.74	54.27
TOTAL	$ 582.36	$ 477.25	$ 494.11	$ 561.96	$ 673.46

Supply Management. The term supply management includes several administrative procedures. It includes the processes of requisitioning, ordering, receiving, storing, delivering, and inventorying. All of these procedures are under the direction of the chief school administrator in each school district. Many of these activities can be accomplished by clerical employees if the districts are large enough to justify such employees. The time and effort that a superintendent or principal must devote to these activities limits the time that he can devote to instructional leadership.

Requisitioning. In any school district the teachers should be provided the opportunity of making known to the administration the kinds of instructional supplies and materials that they need to provide quality educational opportunities in their classes. This was done in each district by some requisition procedure.

Purchasing. The philosophy that should govern purchasing policies is one of securing the greatest amount of educational value for each dollar spent. Each school board should adopt a policy whereby the business administrator uses acceptable procedures to achieve this end. Upon adoption of a detailed budget a board authorizes the administrator to procede to execute it. The policies recommended by the survey team are as follows:

1. Items costing less than $100 can be purchased by the authorized person at his discretion.

2. Items costing between $100 and $500 can be purchased by the authorized person after having received three telephone or verbal quotations. These should be reported to the board at a later date.

3. Items ranging in price between $500 and $1000 can be purchased after authorized person receives written quotations from three or more vendors, if possible.

4. Items costing between $1000 and $2500 should be purchased by sealed bids and awarded by the board.

5. Items costing more than $2500 should be purchased by sealed bids after an advertisement has been run in the local paper at least three times prior to the opening of the bids, the first date being at least 15 days in advance of bid opening.

If other things are equal it is recommended that the school district purchase from a district merchant. However, if a purchase from a local merchant requires a greater financial outlay a decision to buy from outside the district is the best decision from the standpoint of all the taxpayers. Economy is not always obtained by purchasing at the lowest cost. Service is a very important factor with many items and should always be considered in making purchases.

It is recommended that the five districts develop common purchasing procedures so that orders may be consolidated for cooperative purchasing. Significant economies of money and professional manpower could be accomplished by such a system. Cooperative record keeping might provide additional benefits as the computer becomes available to smaller groups of schools.

Warehousing. None of the districts maintains a warehouse. Each has some storage space for supplies. A warehouse operation for small districts serves no useful purpose unless routine procurement of supplies within a reasonable time is impossible.

Key control. Each district should have a keying system that permits control and maintenance of locks and keys in the simplest, easiest way possible. Grand master keys for a system and master keys for an individual school are good practice. Tight control on use of master keys must be maintained. Key files should be maintained so that a record is kept of each key issued. Key files should be located in a burglar-proof area.

Accounting Procedures

District funds. The financial accounts for each school district are maintained by the county school superintendent. However, some districts find it essential to maintain a similar set of records because the county accounts are not readily accessible. A district needs to encumber accounts upon issuing purchase orders. All district expenditures are approved by the school board and signatures assert the same. Warrants are issued by the county school superintendent after a pre-audit to determine that all proposed expenditures are legal. Accounts for each category of the budget are maintained at the county level. Balance sheets are provided each district on a monthly basis.

District funds are handled by the county officials. Property taxes are collected, credited to the respective school districts, and paid out by the county superintendent's office only upon authorization of vocational education funds, homebound education funds, county funds, auto lieu taxes, and miscellaneous receipts at the county level. A local district may collect rent on school buildings but must transmit same to the county superintendent for deposit. No such funds can be spent except in the regular budget-voucher procedure. Any district funds received at the local level should be deposited in a bank account labeled "District Funds." At the end of each calandar month the entire balance should be transmitted to the county office. Each receipt at the local level should be identified by a written or printed receipt - a printed cash register tape suffices.

Student activity funds. All student activity funds must be handled in accordance with state law. (A.R.S. 15-1271-74). The law requires that any funds raised by student efforts (including bookstores and athletics) must be deposited in a local account and all expenditures must be made by check. The treasurer of such account is appointed by the school board and must have an official bond. The funds must be audited yearly by an independent auditor. School officials handling student funds should give careful study and consideration to the instructions found on pages 3 and 4 of the State Department of Public Instruction publication Arizona Uniform System of Records and Accounting for Arizona Public Schools. All funds raised by students with school approval are classified as student activity funds. Stamp clubs, FFA clubs, Letterman Clubs, etc., cannot have independent bank accounts; all such accounts must be handled by the school treasurer.

Cafeteria funds. Funds for purchase of foods used in the lunch programs must be provided from sources other than school district tax funds. All districts collect for lunches served to pupils and teachers. These funds must be deposited with the county school superintendent and can be paid out on regular vouchers for the expenditure of special funds. Each district should maintain adequate records, receipts, etc., to satisfy the auditors' requirements.

Inventories. Inventories of equipment and furnishings are required by law and by good management procedures. Inventories of expendible school supplies are not necessary in small districts. The maintenance of a current inventory is difficult; however, a simple procedure can be followed to maintain a yearly inventory. At the end of each year the teacher can produce an inventory of the equipment in her classroom; this should be filed in a fire-proof vault and, in case of a fire loss, it can serve a valuable purpose. The original cost of the equipment, the age, and state of repair should be indicated.

Pupil accounting. The state law requires that attendance records of pupils be maintained and serve as a basis for State financial aid. Elementary pupils are legally in attendance for one-half day if they are present at any time during either of the half-days on any date. To be counted as a full day's attendance the child must be present during both half-day sessions. High school pupils are counted in attendance for a full day if they are in attendance four hours during the day, and the work in which he engages carries credit toward his school graduation. Accurate records are extremely important because they serve as a basis for financial aid.

Safeguarding a Trust

School boards are entrusted with the protection and care of school children, employees, real property and personal property. To fulfill the responsibility resting on their shoulders it is necessary to carry adequate insurance so that, in the event of a catastrophe, the taxpayers of the school districts will not have to stand the entire loss; it can be shared by carrying insurance. Insurance is nothing more than a method of sharing risks. Prudent management requires an expenditure of school district funds to adequately protect the trust in whatever amount is deemed necessary under present conditions. A comprehensive insurance program must include protection of pupils by general liability insurance and pupil insurance. A district must protect employees by Workman's Compensation Insurance; in addition, districts should purchase extended coverage insurance, fire, general liability, automobile liability (if not included with general liability policy), money coverage, and official and fidelity bonds. Other insurance available to boards that may be purchased to give broader protection includes endorsements on fire policies to include loss due to vandalism and malicious mischief (V & MM), and glass breakage. A musical floater policy will give protection against theft, fire, or accidental damage to musical instruments or band uniforms. Automobile insurance may include losses incurred in collision, theft, fire, and miscellaneous damage. A boiler inspection and insurance policy will protect against liability and losses incurred by explosion of pressure equipment.

Institutional insurance policy. Within recent months it has been possible for school districts to purchase a single policy to cover possible losses except injury to employees, students, and damage to pressure equipment. The policy is so new that insurance companies are still in the "adjustment stage" in trying to promote its use. The policy is written with one company and consequently the number of insurance companies that can participate in the school's insurance business is limited. Companies do not like to be left out when school insurance is being written. Companies exert pressure on agents to see that their firm gets some of the business. The idea of such an all-purpose insurance policy is the "answer" to a school district's problem. With the lumping into one package of all insurance needs it will be possible for both the insurance company and the school district to make a saving. The insurance agency working with a school district should investigate the cost of such a plan with the several companies it represents. The costs will vary and the taxpayers should be entitled to the desired protection at the lowest cost.

During the first year or two it will be proper that only part of the comprehensive package of insurance be written or included in the institutional policy. Rates have not been firmly fixed. Until rates are stabilized it may be just as economical to secure adequate protection with several kinds of insurance. This should not be the case by 1966.

Fire and extended coverage insurance. If this type of insurance is not now included in the institutional policy it is a "must." School districts may purchase the Public Institutional Property Form (PIP) Policy. This insurance results in savings to the district of about 30% over the regular type insurance. A district with low valuation on property cannot avail itself to this type of insurance. This insurance protects against loss caused by fire, hail, lightning, falling aircraft, etc. Endorsements can be purchased to cover damage by vandalism and malicious mischief, but the cost is frequently greater than the loss experienced by a district in a normal year. Loss against glass breakage is also available by endorsement, but usually the cost is high.

Boiler insurance. Boiler insurance includes a charge for yearly inspections as well as providing insurance against losses incurred by the explosion of a type of pressure equipment. Items that can be included in this coverage are: boilers, hot water heaters, air compressors, refrigeration equipment, and steam pressure equipment used in a kitchen. Only items listed on the policy are covered. Some districts do not have any such pieces of equipment in places that make them dangerous. Some schools cover only the pressure boilers, primarily to get the yearly inspection by a qualified boiler expert.

General liability insurance. In April, 1963 the Arizona Supreme Court handed down a momentous decision (Stone v. Arizona Highway Commission, 381 P. 2nd 107) that abolished governmental immunity against tort liability for state and other political subdivisions in Arizona. School districts can now be sued for acts of negligence that result in injury to a person or damage to property. Each district should have protection to the extent of $500,000 or $1,000,000 for a single injury and approximately $3,000,000 for a single accident. A court judgment against a school district could be disastrous to the taxpayers if not properly protected with insurance. The cost is high but the risk is great. The general liability policy can be a part of the institutional policy. It can also cover automobile liability as well as general liability.

Automobile insurance. Because school districts are engaged in transporting the most precious cargo on the highway it is necessary to carry liability insurance in connection with this service. The limits of such coverage are indicated under general liability. This protection can be provided in a general liability policy. A school district may wish to protect its taxpayers against loss of buses by fire, collision, and miscellaneous loss. This type of coverage, with $50 or $100 deductible on collision, is not expensive. The liability protection is a "must."

Pupil insurance. Arrangements should be made so that pupils may secure pupil insurance to protect themselves against losses due to injuries sustained on school grounds. This insurance can be procured for 24 hour protection or limited to protection from the time the child leaves home in the morning until he arrives back home at night. Not all children will need this protection; some families have adequate coverage through a family policy, possibly Blue Cross-Blue Shield or another regular insurance company.

Industrial insurance. Each employee is fully covered with Workman's Compensation Insurance which is operated by the State of Arizona. Medical hospital, and loss of wages are coverages included for employees who may be injured while performing work for the school.

Money coverage. A broad-form money coverage policy is recommended. This policy should protect the district against money losses due to burglary, theft, hold-ups, and mysterious disappearance. Broad-form protection is not a great deal more expensive than burglary insurance.

Official bond. This type of bond is designed to cover losses by an official operating in his assigned task. It is for an official who is designated by law to have specified duties in handling money. The student body treasurer needs this kind of bond.

Fidelity bond. Many school districts buy protection (against losses due to dishonest handling of money by employees) with a blanket fidelity bond. This is to help insure honesty and also provide recompense should money or property disappear by dishonest acts. A blanket policy will generally provide the naming of positions related to chief money handlers and will specify the amount of coverage. All other employees are covered with a minimum amount.

Extent of insurance coverage. The insurance programs of each school district were carefully studied. Only Buckeye Elementary and Buckeye Union High School Districts had general liability protection. The other districts all had liability in connection with automobile policies but this protection is not adequate under existing law. A general liability policy to protect the district, board members and employees is essential. Without such protection the taxpayers could be faced with heavy taxation in some future year to pay for damages awarded by an Arizona Court.

The Palo Verde District had fire insurance and automobile insurance protection. The buildings and equipment were insured for $200,000 and the limits on automobile liability were $100,000/$300,000/$10,000. The Arlington District had buildings insured for $343,000, automobile liability at $20,000/$100,000/$5,000. Arlington also had a burglary and robbery policy as well as an official bond on the principal. The Liberty School District had buildings properly insured and had automobile liability insurance in the amounts of $100,000/$300,000/$10,000.

Buckeye Elementary School District had an institutional policy that afforded protection against fire and related hazards, vandalism and malicious mischief, glass breakage, burglary and robbery, and a musical instrument protection floater. This district also had boiler insurance, general liability, automobile, and official bonds. The extent of liability protection was $250,000/$500,000/$50,000.

The Buckeye Union High School District had the new institutional insurance policy and had protection against fire, vandalism and malicious mischief, glass breakage, general liability ($250,000/$1,000,000/$100,000), and burglary and robbery. Other policies gave coverage for musical instruments, and boiler insurance.

Observations and Commendations

The school authorities from each district cooperated with the survey team by making all records available and by answering questions asked. Administrators asked specific questions in search for better methods of operation. Each school district had selected an insurance advisor and was following the advice he provided. The advice given seems to have been the best interests of the districts, as well as the taxpayers. Each district exhibited careful management of school funds and also made pupil insurance available to the students in each school.

Conclusions and Recommendations

Some recommendations have already been given in connection with specific business procedures. However, some of the major ones should be re-emphasized. It is recommended that each school district obtain general liability insurance to protect the district, the board, and employees against tort action related to negligence. The amount of coverage should be at least $500,000 for injury to one person, $3,000,000 for injury to several persons in one act, and property damage protection in the amount of at least $25,000.

The purchasing for each district should be by authorized personnel only. The purchasing agent (or other person so delegated the responsibility) should use pre-numbered purchase order blanks in order to establish proper controls. Districts should try to purchase cooperatively in order to secure the best values.

Each district should establish a Student Activity Fund. Buckeye Union High School District's activity fund is audited annually in accordance with law. Some accounts were overdrawn at the end of the last school year. A student activity should not go in the "red." Money should be borrowed from a parent organization, such as the student council. This borrowing procedure, with the application for loan, approval, and payment of interest provides a good learning experience for students. It appears that some funds might be more properly labeled "Student Council-Lock Account," "Student Council-Bookstore," "Student Council-Snack Bar," etc., unless each of these is operated by a student organization. The school administrators in the elementary school districts should give careful study to pages three and four in the Arizona Uniform System of Records and Accounting, 1964.

It is recommended that the administrators of the five districts explore the possibilities of cooperative buying. One administrator might collect the lists of general supplies that each district wishes to purchase during the year. Bid forms can be arranged so that each school writes an individual purchase order to the successful bidder after the bids are opened and evaluated.

It is also recommended that the five districts study the merits that might exist with centralized accounting and record keeping. Electronic data processing is coming within the reach of small districts by use of service centers. None of the districts has the personnel to do the job at the present time and none can justify the expenditure for such processing. However, if several districts wish to utilize a central office person for such a task it might be within the reach of each district.

RECAPITULATION AND CONCLUDING STATEMENT

An overview of the total school community lying within the boundaries of the Buckeye Union High School District presents a picture that is largely rural in nature but also is distinguished by diversity. The city of Buckeye is the geographic and to a considerable extent the economic heart of the entire area.

The total school community includes four elementary school districts - Arlington, Buckeye, Liberty and Palo Verde - which together comprise the total area of the Buckeye Union High School District. Among the four elementary school districts two, Liberty and Palo Verde, operate single school plants. The other elementary school districts, Arlington and Buckeye, maintain two separate school sites each. School district wealth, as figured in terms of the amount of taxable property per school child, varies greatly among the separate elementary school districts. This has undoubtedly been responsible for much of the variety in (both) quantity and quality of instructional and educational services provided by the four separate school districts.

The Survey Staff wishes to express its admiration and congratulations to the Board of Education and the administration of the Buckeye Union High School District for having the foresight and the willingness to authorize and cooperatively engage in a study of this type.

In addition, the boards and superintendents of the four participating elementary school districts are likewise deserving of commendation for joining together in this educational survey and for providing the leadership which insured the necessary and valuable participation of their respective professional staffs.

This demonstration of leadership and cooperation means that all members of the respective Boards of Education, together with their administrative leaders, were - and are - interested in searching for ways to improve the educational opportunities for the youth in the schools under their direction, in addition to having a concern for educational improvement extending even beyond the bounds of their respective districts.

The philosophy underlying the visitation-evaluation was that school systems can - and should - be evaluated in terms of their respective philosophies and objectives. The conclusions and, particularly, the recommendations which appear in each section of the report are offered to boards of education, teachers, administrators and patrons who are interested in exploring new and improved approaches to instructional objectives.

The values to be derived from a survey staff visitation are often unpredictable and frequently inestimable. However, when interested and informed people are brought together to analyze and discuss problems of common professional concern, benefits usually accrue to all parties. Visiting staff consultants and school staff members exchanged views on such matters of common interest as the following: techniques of effective teaching; the nature and growth of children - including their mental, emotional and physical well-being; new guide-lines for more effective instruction in the separate subject areas; the availability of newer materials and media of instruction; scheduling of instruction; criteria with which to identify and/or measure excellence in education, and others.

All major facets of the curriculum were investigated, including the learning skills, content subjects, and certain social, physical, and aesthetic aspects of instruction. Not only were programs for teaching the so-called basic skills studied, but also opportunities provided for children to make functional use of these skills in all areas of instruction, particularly those most conducive to personal and social growth, including greater understanding of the world in which enlightened American citizens must live. While the bulk of this investigation was devoted to the educational programs of the several school districts, the survey was not limited to these areas. Also considered were important related problems such as school class facilities, finance, pupil personnel services, transportation and school administration.

Each curriculum subject area was investigated by one or more consultants who are specialists with many years of study and experience in their respective fields. The statements written by the members of the survey team are based on and are consistent with the results of extensive educational research and the considered judgments rendered by recognized leaders in education throughout the country. There was another highly important dimension of the curriculum survey; it was the relationship of the respective elementary school districts' educational programs to the curriculum of the Buckeye Union High School District. The purpose was, of course, to determine means through which all children could be provided with improved opportunities for optimum personal growth and academic achievement wherever possible.

The survey staff approached its task with several purposes in mind. Perhaps foremost among these was to conduct a careful observation of each of the separate school districts' educational programs followed by the development of recommendations designed to strengthen and unify these programs, thus providing the best possible educational experiences for all of the children in all the school districts. The results of this approach are reflected throughout the survey report.

Another objective closely related to the one above, was concerned with attempting to assist the staff of the Buckeye Union High School District in its efforts to obtain a more meaningful and effective understanding of the four elementary school districts' curriculums. The reasons for this were many, but foremost among them was the need to more clearly perceive the actual pre-high school educational experiences of all students in order to be able to wisely build greater continuity (long-range articulation) and more meaningful educational opportunities into the secondary school program of instruction.

It should be noted that, among the many recommendations submitted by members of the survey staff, a number refer to the appointment of additional professional staff members. The directors of the survey did not discourage survey consultant specialists from making such recommendations, even though the latter could not be completely aware of either the total instructional needs of the separate school districts, or of the respective districts' abilities to finance such projects. It was decided that the inclusion of such recommendations would serve to draw attention to some of the areas of greatest concern as seen by the specialist consultants. Even though the resulting recommendations (for staff additions) may seem to be unrealistic when viewed in toto, present school staff personnel must take cognition of the conditions which prompted survey consultants to make such recommendations. Furthermore, when these recommendations are considered over a period of years, they become parts of a pattern of realistic and necessary growth and development.

In retrospect the directors of the survey cite specific problem areas which were observed during the course of the survey, together with recommendations for alleviating such conditions. The recommendations were intended for use in improving the total school programs for all children who will in the coming years depend on the five cooperating school districts for the quality of their formal educational experiences. Major recommendations are concerned with the following problem areas:

1. Curriculum coordination and direction.

2. Center for Educational Services.

3. Library coordination, including selection and purchasing, and regular library instruction.

4. Special education - including a cooperative approach involving all participating school districts.

5. Enriched pre-first grade experiences for all children.

6. Plans for the development of present and/or additional school sites.

7. Coordination of business services including transportation and purchasing.

8. Personnel administration - including recommendations for staff changes and/or additions.

9. Additional special recommendations on matters of importance to the improvement of the instructional program.

10. Guidelines for the direction and development of the future Buckeye Union High School instructional program.

11. Establishing priorities for progress.

Recommendation No. 1 - Curriculum Coordination and Direction

The need exists for the establishment of a joint undertaking for the primary purpose of developing a higher degree of correlation and articulation between and among the several school programs for grade one through grade twelve. The survey staff noted in all the elementary districts the need for an improved sequential program of instruction from grades one through eight, upon which the high school could then build an appropriate and more effective educational program at the secondary level.

In order to achieve the necessary coordination, the district superintendents should take the lead in cooperatively working together to jointly assign responsibilities for a number of important educational leadership tasks including the following: inservice education; textbook selection; curriculum planning; testing programs including test selection, administration, interpretation and usage; all-district coordination of programs of counseling and guidance; and the preparation of curriculum materials, plus the procurement of necessary supporting equipment and supplies.

The survey directors recommend that the superintendents of the five participating school districts establish themselves as a permanent curriculum coordination council that will meet regularly for the purpose of conducting business essential to the improvement of the total instructional program in all the school districts.

The high school could very appropriately take the leadership in this undertaking. A curriculum center to be used as a regular meeting place for the superintendents should be provided and suitably equipped. In their deliberations the superintendents could well identify areas of common concern (using the Report of survey as a major source of information and guidance) and confine their discussions to the pursuit of ways and means of solving some of the major problems thus identified. Once the superintendents have reached a consensus regarding ways and means of solving a given problem, they will then be able to present to their respective boards of education a common recommendation which, if approved, could then be jointly implemented by the cooperating districts. There will be many opportunities for implementing educational improvements under this arrangement.

The survey directors cannot stress too strongly the need to establish and maintain an active working group of cooperating superintendents of the five school districts lying within the boundaries of the Buckeye Union High School District.

Recommendation No. 2 - Center for Educational Services

The survey staff recommends as soon as it becomes feasible and possible that a permanent center for educational services be established, and that it be jointly sponsored and supported by the participating school districts, including the high school district. A full-time director of educational services should be appointed and he should serve in a staff relationship as the executive officer charged with the responsibility of carrying out the decisions made by the superintendents' group and formally approved by the respective boards of education. Curriculum coordination, inservice education and special education would be major leadership responsibilities of the director.

Recommendation No. 3 - Library Services and Instruction

The survey staff concluded that a need exists for coordination of library services among the several participating districts, and recommends that steps be taken to affect a greater degree of cooperation in the selection, purchasing and processing of instructional materials, including books, as well as other audio-visual materials and equipment. In addition, steps should be taken to provide a minimum common program of library instruction and experiences for all elementary school pupils including the cooperative use of librarians among the districts. A number of recommendations appear in the appropriate section of this report designed to cope with some of the problems cited. However, centralized coordination, selection and purchasing should be seriously considered by the participating superintendents. The high school should offer to provide leadership and assistance in working cooperatively with elementary school representatives charged with giving library instruction, in addition to the procurement, processing, distribution and usage of library books, materials and supplies.

Recommendation No. 4 - Special Education

It is recommended that all aspects of special education become a joint and cooperative undertaking involving the active participation of all five participating school districts. It is further recommended that a center for special education be established in the city of Buckeye, and that this center be placed under the jurisdiction and surveillance of the committee of superintendents until such time as a director of educational services is appointed to give supervisory and administrative direction to the center. (See Recommendation No. 2, above).

Under present conditions the separate school districts are not able to provide an adequate program of special education for the children under their jurisdiction. However, if the five school districts adopt a cooperative approach, a fine special education program could be established and thus the responsibility could be adequately fulfilled.

Recommendation No. 5 - Early Childhood Education

The survey staff recommends that great effort be extended to provide more enriched pre-first grade educational experiences for all children in all four elementary school districts. It is further recommended that a concerted effort be made to bring about the establishment of a full program of kindergarten education as soon as circumstances permit. Many of the educational problems presently existing in the several elementary districts can probably be traced to early deprivation of educational opportunities and experiences for a relatively large number of school pupils. Research studies have shown that if children are given the benefits of early formal language training, including reading and related experiences, the total program of education will be immeasurably strengthened. This is particularly true in cases where children enter school from homes which are culturally, economically and socially disadvantaged, where they have not had the prior benefits usually accorded to children who come from culturally, economically and socially enriched homes.

Recommendation No. 6 - Plan for the Development of Present and/or Additional School Sites.

Several recommendations appear in the appropriate sections of the survey relative to additions or modifications to existing school sites. However, a number of these will be cited here and additional comments made. The survey staff agrees that the Buckeye Union High School District is most fortunate in having already procured a highly desirable site for a second high school to be located in the Harquahala Valley. The present development of Harquahala Valley, plus the apparent promise of additional water and the advent of development of the new interstate freeway, clearly suggest that the Buckeye Union High School District will need to build a new high school plant on the second site within the next decade.

It is suggested that the superintendents council seriously consider the possibilities inherent in establishing--and housing--an all-district office of educational services. (See Recommendation #2 above.) One logical possibility would be the inclusion of such a facility in the plans to be developed for the proposed Buckeye Elementary District Administrative Center for which a site has already been obtained. This action would not only provide suitable housing for a very necessary service center, but would avoid future duplication and expense.

Recommendation No. 7 - Coordination of Services, Including Transportation and Purchasing

The survey staff recommends that transportation become a common undertaking under a director of pupil transportation, jointly sponsored by the participating school districts and that the high school be designated as the responsible coordinating agency. Although some cooperative efforts concerning transportation are in effect at present there is a certain amount of duplication of services, equipment, and facilities.

Development of common purchasing procedures and consolidation of orders for many items would result in significant economies in dollars and professional man-hours. As the area develops and population increases, this overlapping and duplication could become even more evident. Of all the recommendations included in this survey, this is possibly the one on which the superintendents could well begin their discussions. Immediate savings to the separate districts could result and the long-range savings would be inestimable.

Recommendation No. 8 - Staff Personnel

A number of recommendations appear in the survey concerning the addition of full-time or part-time professional staff members to the respective faculties of the participating school districts. As previously indicated, many of these recommendations were made by curriculum subject specialists who were not aware of the school districts' total instructional needs since they studied only their respective areas of the curriculum, and thus they were not informed as to the availability of funds to finance such additions.

It is recommended that the superintendents group carefully study the reports and then discuss the possibilities for providing jointly-sponsored services where staff additions are recommended or required. In many instances it would not be economically feasible or possible to provide separate programs, but selected educational improvements could be attained by cooperative effort. The survey staff strongly emphasizes, however, that the addition of part-time or full-time professional personnel, as well as professional consultant services, be done as part of a master plan, with full participation by representatives of all school districts. If and when the jointly-sponsored office of educational services is established, (Recommendation No. 2) and a director appointed, it would be among the major responsibilities of that office to develop ways and means of making maximum use of existing school staff competencies, and making recommendations for the addition and appropriate utilization of any additional personnel, including part-time specialists and the employment of consultant services. At the outset the superintendents group should carry these responsibilities for implementation of jointly-sponsored programs and personnel.

Recommendation No. 9 - Special Recommendations

The survey staff wishes to call attention to a number of conclusions and recommendations in the survey report. While the specific recommendations will not be identified here, they will be found in the appropriate sections of the report under such headings as language centers, art instruction, music education, physical education programs, mathematics (particularly "modern" math), science education, social studies instruction, and other problems related to the effectiveness of instructional leadership.

Particular attention is called to the need for a balanced program of reading instruction, including phonics and comprehension skills, throughout all grades (1 to 8) in all four elementary school districts participating in the survey. The survey staff strongly recommends that the leadership in all districts, including the high school district should work closely, regularly and cooperatively to establish and maintain a sequential plan of instruction in all subjects especially language arts, mathematics and the social studies.

Recommendation No. 10 - Guidelines for the Buckeye Union High School District

The survey staff cautions the leadership of the Buckeye Union High School District educational program to avoid all attempts at "spreading itself too thin" in its attempts to provide a comprehensive secondary educational program on the one hand, and adapting its educational offerings to the needs and/or limitations of the individual students coming to the high school from the four elementary school districts. If the five school districts work together, as recommended, to provide an organized and sequential plan of instruction in all subjects for all grades, the high school will then be able to provide a more comprehensive and effective educational program in depth for all students.

Although the high school program should be designed and adapted to meet the immediate needs of its economic environment, the nature of the school community is such that it does not and probably will not, in the foreseeable future, provide an outlet for more than a fraction of the vocationally trained manpower which the high school is capable of developing. In other words, too much concern should not be given to the fact that Buckeye Union High School graduates do not remain in the community after graduation. As long as the general area remains largely agricultural, this condition will persist. On the other hand, the development of the Brenda Cutoff, plus the Central Arizona Project, could well provide an impetus toward area industrialization. There would then be a growing market for vocational and industrial skills. What skills will be required, however, to man the necessary vocational stations in a future modern industrial complex cannot be predicted. Nor should the high school be concerned with the problem of retraining workers in order to meet the changing needs of their vocational surroundings, at least not in regular day school. This responsibility should rest within the province of either an adult night school or, preferably, a community junior college - and with the industries themselves.

The high school staff should concern itself with giving vocational guidance to students, with due regard for the changing demands of the total economic community. Efforts to provide a comprehensive secondary educational program, especially a program tailored to the needs and abilities of the student body, are to be commended and given full encouragement. However, the survey staff wishes to stress that a major cooperative effort should be made to effect improved articulation between the elementary and secondary school curriculums. Moreover, equal stress should be given to efforts to improve the effectiveness of the elementary school programs, thus reducing the range of achievement among high school freshmen. The secondary school should then be able to provide a comprehensive and qualitative program of education for all students without overtaxing its resources. It is to this general area that the five cooperating school districts should devote their energies. A number of recommendations in the survey were intended to reinforce these statements.

Recommendation No. 11 - Establishing Priorities for Progress

The survey staff wishes to encourage the high school district to take the leadership in helping to coordinate many of the educational activities of the participating school districts in order to achieve a better educational program for each child enrolled - and for each tax dollar spent. The survey staff furthermore strongly recommends that the Boards of Education and the administrators of the participating school districts enthusiastically offer their active cooperation on a continuing basis in order to bring about needed improvements.

While the areas of possible effective cooperation among the several school districts are literally unlimited, certain problems have been sighted for priority of attention. The common problems of pupil transportation and purchasing appear to be logical starting points for implementing a long-range program of inter-district, jointly-sponsored relationships. Next in line, priority-wise, would likely be the development of an office of instructional services and coordination, with a director who should also serve in a staff relationship responsible to the committee of superintendents representing the five sponsoring school districts. Once appointed, the director would be responsible for the implementation of decisions for action made by the superintendents' group relative to many of the matters cited in the survey (subject, of course, to approval by District Boards of Education).

Foremost among instructional problems is the need for an articulated, sequential plan of subject presentation in all grades in all schools. Problems concerned with the coordination and operation of a program of library instruction and materials, and audio-visual education, would be other matters of prime concern.

It is strongly recommended that a long-range program of inservice education be carefully planned and jointly implemented. The district superintendents should take the lead in this activity and should arrange for the fullest active participation of their respective school staff members in the various professional undertakings. Teachers and other school staff members should be invited to participate in the development of general and specific plans for a three-to-five year intensive program designed to up-grade the personal and professional effectiveness of every teacher in each of the participating school districts. All administrators should be expected to provide the highest type of continuous educational leadership.

Problems pertaining to special education need careful attention, and early childhood education should be dealt with conscientiously in order to provide programs of early language training now lacking in the personal experience of many of the districts' pre-school children.

The procurement and supervision of additional part-time and full-time curriculum specialists should be facilitated, in addition to providing for consultant services as needed. In this connection all types of special services needs should be dealt with promptly and effectively, whether they be in the fields of music, health, physical education, testing or (perhaps) personal, vocational or educational guidance.

In substance, the survey staff views the Buckeye Union High School District and the four participating elementary school districts as a single educational community responsible for providing a coordinated educational program for all children from grade one through grade twelve. Moreover, the educational benefits to be derived from increased active cooperation between the school districts appear to far outweigh those that might be identified with present operation of the school districts as totally separate educational entities.

Concluding Statement

This survey report contains many suggestions and recommendations covering all subjects of the curriculum as presented by the separate school districts participating in the survey. These recommendations were intended to assist the staffs of the several schools to improve their total educational program effectiveness. Many recommendations pertain to modifications of instructional programs, including curriculum reorganization, time allocations for certain subjects, and subject matter content. The need for additional staff assistance to help make more effective the already commendable instructional leadership now at work, has been pointed out. The procurement, distribution and control of instructional materials and equipment, including books, textbooks, and audio-visual materials, have been dealt with in depth. Staff additions and suggested staff reassignments have been mentioned from place to place in the report; attention has been called to the limitations of these recommendations. Many recommendations have been included pertaining to inservice programs and the modification and/or addition of facilities and equipment in the separate school districts.

It should be emphasized that the recommendations included in this report are not intended to be taken as a "package." Rather the total survey should be viewed as a comprehensive list from which discriminating priorities should be developed in the future. Recommendations regarding the highest priorities have been made ty the survey staff, but the final decisions are left with the administrators of the separate school districts to determine (with the approval of their Boards of Education) those items which shall be assigned high priorities, and therefore scheduled to receive prompt attention. Lower priorities should likewise be assigned to other recommendations so that regular improvement is systematically and steadily continued.

The survey staff wishes to emphasize that many elements of quality were observed during the course of the survey and the respective Boards of Education and professional staff members are to be commended for providing many excellent examples of enriched educational opportunities for youngsters. Excellent rapport appeared to exist among students, teachers and administrators in all the schools visited. This means that teachers and administrators are genuinely interested in pupils as individuals and have deliberately set out to establish fine relationships with them and with each other. General behavior of all the students observed was on all occasions very satisfactory, and in many instances exceptionally fine.

In years past, the separate school communities, their school boards and school staffs, have faced problems and made many decisions resulting in the development of their educational programs to date. New decisions are now in order. The active interest and concern of the members of the Boards of Education and the responsible administrative leaders of the separate school districts can now ultimately result in decisions which can lead to further excellence in the educational experiences of the children in the participating school districts. Enlightened and intelligent foresight, leadership and statesmanship, plus a joint determination to work for improvement are necessary. The survey staff believes that the cooperating school districts possess the educational leadership required to provide greater excellence to the total educational community. The question now becomes one of degree of determination and purpose.

Legal consolidation of elementary and high school districts into one entity is not possible under Arizona State Law at the present time, but consolidation of two or more elementary districts into one district is legally possible. The consolidation of all four elementary districts included in this study is not recommended by the survey team at this time. However, the inequities which exist in the financial abilities of the several districts comprising the Buckeye Union High School District, the differences in educational programs, and the limitations of size clearly indicate that the problems of inequity of effort and inequality of educational opportunities for students throughout the area must be solved. This report has recommended a considerable degree of cooperation and coordination among all five districts to reduce the differences in the educational programs and to promote improved educational opportunities from grades one through twelve for all students as well as to effect economies which could be quite significant.

The President's Commission on National Goals strongly emphasized the need for consolidating small districts, "reducing the total number from 40,000 to 10,000" in order to strengthen educational efficiency and effectiveness at the local level.[1] Reorganization of school districts has been progressing at a rapid rate in recent years. The number of school districts in the United States is decreasing about ten per cent each year and it is only a matter of time before much reorganization will result in Arizona. It will become a reality through local cooperative planning or through a state program.

The study of reorganization of school districts in other states indicates that when local districts delay too long in developing their own programs of reorganization, the state moves in and mandates the program. The states bordering Arizona, including California, Nevada, Utah and New Mexico have had or are undergoing significant reorganization programs. In many cases the reorganization has been so extreme that the benefits of local planning and control are greatly reduced. It is recommended that continued study be devoted to consolidation of the school districts by citizens, school boards and district administrators at the local level and the state level so that orderly and desirable transition can be established.

The survey staff recommends as a first major step that the citizens of the Palo Verde District seriously consider consolidation as soon as possible, with an adjacent elementary district, either Arlington or Buckeye.* This consolidation would not reduce the number of professional personnel--administrative and classroom teachers. The extreme limitations of all resources in the Palo Verde District severely restrict the possibilities for improvements in the educational program. Palo Verde is making great effort to provide a good program but the needed special programs and special personnel, pupil services, and facilities are not possible as the district is now constituted.

The cooperative objectivity which the superintendents and school boards manifested in requesting the present study has been excellent and should serve well in establishing further coordination among the respective districts in implementing the recommendations of this study. The districts should immediately establish procedures and machinery for a strong degree of coordination in matters of the educational program, pupil services, and school business operation.

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[1] The Report of the President's Commission on National Goals. The American Assembly, Columbia University, 1960, p. 6.

*Note - If the citizens of the Winters Wells District wish to consolidate with one of the elementary districts and become a part of the Buckeye Union High School District, their addition should be welcomed.

These recommendations are presented in the best interests of improved educational programs for all children of all grades in all districts encompassed by Buckeye Union High School District boundaries.

In conclusion, the Survey Staff wishes to add that, in its opinion, the Boards of Education, the district superintendents, and the professional staff members of each of the participating school districts are deserving of great credit and complete community support in their efforts to continually improve themselves and the educational opportunities offered to the boys and girls in their care. Arizona State University and the survey staff shall continue to hold an active interest in the future success and achievement of the Buckeye Union High School District and four elementary school districts lying geographically within its boundaries - namely, Arlington, Buckeye, Liberty and Palo Verde.